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A TEST FOR ADRENAL CORTICAL INSUFFICIENCY

The Response to Pituitary Andrenocorticotropic Hormone

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The recent preparation of a purified pituitary adrenocorticotropic hormone in sufficient quantity for use in human subjects[1] has provided an opportunity to stimulate directly the human adrenal cortex.[2] It appeared likely that, in patients suffering from primary adrenal cortical insufficiency, the normal response to this specific stimulus would fail to occur. This expectation has been substantiated by clinical studies.[3] The development of a simple test for adrenal cortical insufficiency based on the failure of patients with Addison's disease to secrete cortical hormones in response to the pituitary adrenocorticotropic hormone has been the aim of this study.

Among the numerous metabolic[3] and hematologic[4] changes which follow administration of the hormone in subjects with an intact adrenal cortex, two have been selected as the basis for a clinical test for adrenal cortical reserve because of their simplicity of determination and magnitude of change: (1) a fall in circulating eosinophils, measured by direct enumeration in order to attain the necessary accuracy, and (2) an increase in urinary excretion of uric acid conveniently expressed as a change in uric acid - creatinine ratio. This obviates the necessity for accurate collections of urine.

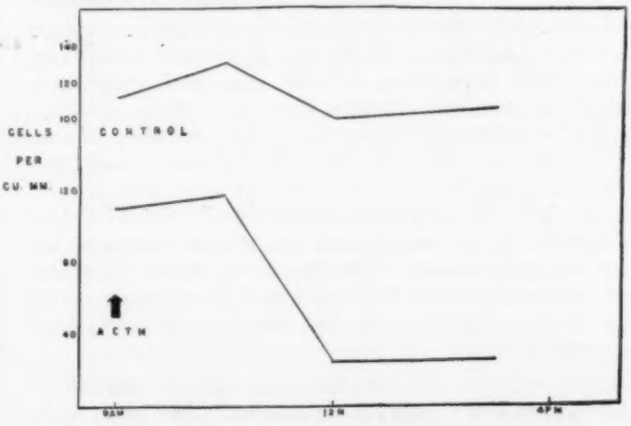

Fig. 1—Changes observed in circulating eosinophils in a normal male subject given 25 mg. of adrenocorticotropic hormone intramuscularly at 8 a.m. (Note maximum decrease at end of four hours.)

Experimental studies indicated that the maximum fall in circulating eosinophils and the maximum increase in excretion of uric acid occurred approximately four hours following the intramuscular injection of the hormone (figs. 1 and 2). Patients with classic Addison's disease failed to show these changes after administration of the hormone. On the basis of these differences a test for adrenal cortical insufficiency has been standardized.

PROCEDURE FOR THE TEST

No food is given after 8 p.m. on the day preceding the test; water may be had as de-

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1. The purified hog pituitary adrenocorticotropic hormone used in this study was provided by Dr. John R. Note of the Armour Laboratories, Chicago. Intravenous administration of 2 to 4 micrograms into a hypophysectomized rat provoked a decided decrease in the ascorbic acid content of the adrenals. Electrophorectic analysis revealed the presence of more than one component. The material contains the equivalent of 0.12 unit of oxytocic activity per milligram; growth-promoting, gonadotropic and thyrotropic factors are not present in significant amounts.

2. *(a)* Browne, J.S.L.: The Effect of Adrenocorticotropic Hormone on the Excretion of Cortin-Like Substances on 17-Ketosteroids and on Carbohydrate Tolerance and Nitrogen Balance, in Conference on Metabolic Aspects of Convalescence, New York, June 11-12, 1943, Josiah Macy Jr. Foundation Report, p. 88. *(b)* Thorn, G.W.; Forsham, P.H.; Prunty, F.T.G., and Hills, A.G.: Clinical Studies in Addison s Disease, Ann. New York Acad. Sc., to be published. *(c)* Thorn, G.W.; Prunty, F.T.G., and Forsham, P.H.: Changes in Urinary Steroid Excretion and Correlated metabolic effects during prolonged administration of Adrenocorticotrophic Hormone in Man, Science 105: 528, 1947. *(d)* Mason, H.L.; Power, M.H.; Rynearson, E.H.; Ciarmelli, L.C.; Li, C.H., and Evans, H.M.: Results of Administration of Anterior Pituitary Adrenocorticotrophic Hormone to a Normal Human Being, J. Biol. Chem. 169: 223, 1947.

3. Forsham, P.H.; Thorn, G.W.; Prunty, F.T.G., and Hills, A.G.: Clinical Studies with Pituitary Adrenocorticotropic, J. Clin. Endocrinol. 8: 15, 1948. to be published.

4. Hills, A.G.; Forsham, P.H., and Finch, C.A.: Changes in Circulating Leukocytes Induced by Pituitary Adrenocorticotropic Hormone (ACTH) in Man, Blood, to be published.

sired. On the day of the test, 200 cc. of water is given at 6 a.m., 8 a.m. and 10 a.m. Urine is collected from 6 a.m. to 8 a.m., and

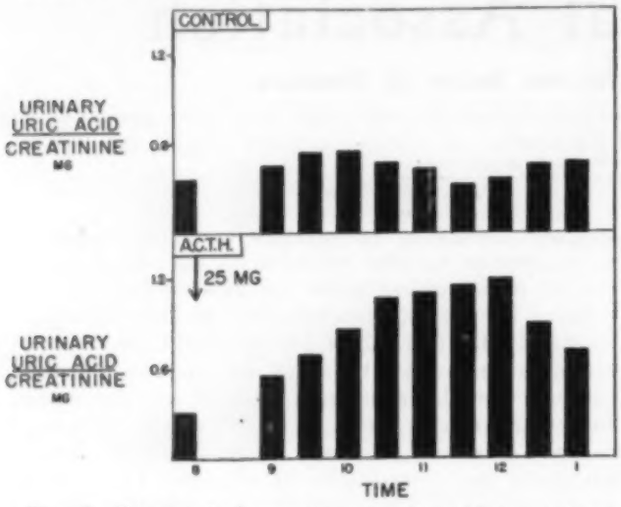

Fig. 2—Changes in excretion of uric acid in a normal male subject given 25 mg. of adrenocorticotropic hormone intramuscularly at 8 a.m. (Note maximum increase at end of four hours.)

an eosinopnil count is made at 8 a.m. Immediately thereafter, 25 mg. of purified adrenocorticotropic hormone is injected intramuscularly. Administration of adrenocorticotropic hormone is attended by no untoward reaction other than blanching of the skin and sometimes brief intestinal cramps due to a small quantity of contaminating oxytocic principle. Urine is collected from 9 a.m. to 12 noon, and another eosinophil count is carried out at 12 noon. The absolute decrease of circulating eosinophils is expressed as the percentage of the initial count. The two specimens of urine are analyzed for uric acid and creatinine, and the change in the uric acidcreatinine ratio is computed.

Uric acid and creatinine may be estimated by any of the standard methods.[5] We employ a special technic[6] for direct eosinophil count.

Oxalated venous blood[7] is drawn into a white cell count pipet up to the 0.5 mark, as in performing the usual leukocyte count, but a special diluting fluid is used. The pipet is shaken at once, for thirty seconds only, to prevent disintegration of eosinophils. The chamber is filled immediately, and the eosinophils are counted after three minutes or more.

The eosinophils appear dark red against a pink background, whereas the other leukocytes are colorless. A Levy chamber having a depth of 0.2 mm. and a ruled area of 16 sq. mm. is employed, and the average of four chamber counts is computed. The number of eosinophils per cubic millimeter equals 6.25 times the average chamber count. The special diluting fluid is made up as follows:

Eosin, aqueous, 2 per cent	5 cc.
Acetone	5 cc.
Distilled water sufficient to make	100 cc.

Filter before use and refrigerate.

INTERPRETATION OF THE TEST

The interpretation of this test is based on preliminary observations of some 60 subjects, including 24 persons with Addison's disease (figs. 3 and 4). A fall in eosinophils of 50

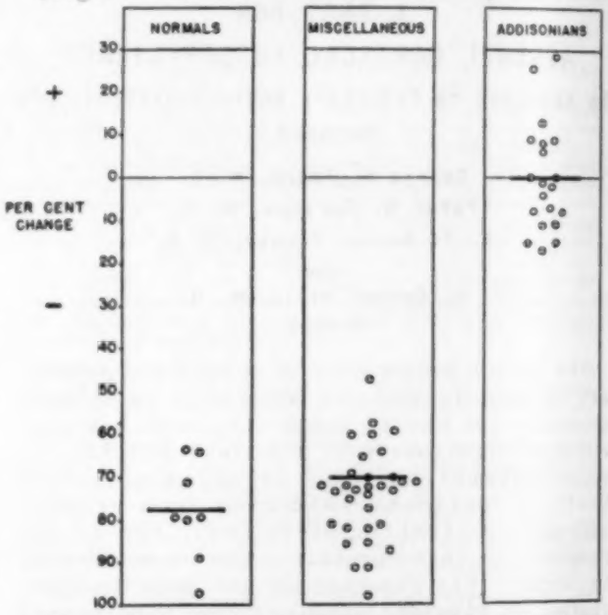

Fig. 3—Each circle represents the percentile change in circulating eosinophils observed in a single subject four hours after the intramuscular injection of 25 mg. of adrenocorticotropic hormone. The solid bar indicates the mean value for the group in each instance.

per cent or more of the initial level and an increase of the uric acid—creatinine ratio to a level above 50 per cent of the control usually indicate a satisfactory adrenal cortical response and in all probability eliminate the possibility of adrenal cortical insufficiency. Illustrative cases are presented in table 1.

The eosinophil response has proved highly sensitive. If it fails to occur, a complete absence of adrenal cortical reserve may be assumed. Conversely, a significant decrease in circulating eosinophils excludes true Addison's disease. One seldom encounters an equivocal effect of adrenocorticotropic hormone on eosinophils. Furthermore, variations in the initial eosinophil count do not affect the percentage fall significantly except during the height of allergic eosinophilia, when production exceeds peripheral destruction of eosinophils.

Patient F.T. McG., suffering from asthma, showed a high initial eosinophil count of 985 cells per cubic millimeter (normal range 100-250) which fell to 187 per cubic millimeter on the administration of 25 mg. of adrenocorticotropic hormone. This represented an 81 per cent fall. With the same dose, patient E.L., a neurasthenic woman who had an ini-

5. Peters, J.P., and Van Slyke, D.D.: Quantitative and Clinical Chemistry: Methods, Baltimore, Williams & Wilkins Company, 1932.

6. Danger, R.: Eine einfache Methode der Zahlung der eosinophilen Leukozyten und der praktische Wert dieser Untersuchung, Munchen. Med. Wchnschr. 57: 1942, 1910.

7. Five cubic centimeters of venous blood is drawn into a small collecting bottle containing the dried residue of 0.5 cc. of a balanced oxalate solution (1.2 Gm. ammonium oxalate and 0.8 Gm. potassium oxalate made up to 100 cc. with distilled water).

tial count of only 85 per cubic millimeter, showed a fall to 7 per cubic millimeter, which is equivalent to an 86 per cent fall.

The uric acid response tends to display a gradation which appears to correlate clinically with the potential adrenal cortical reserve. There is moderate overlap between

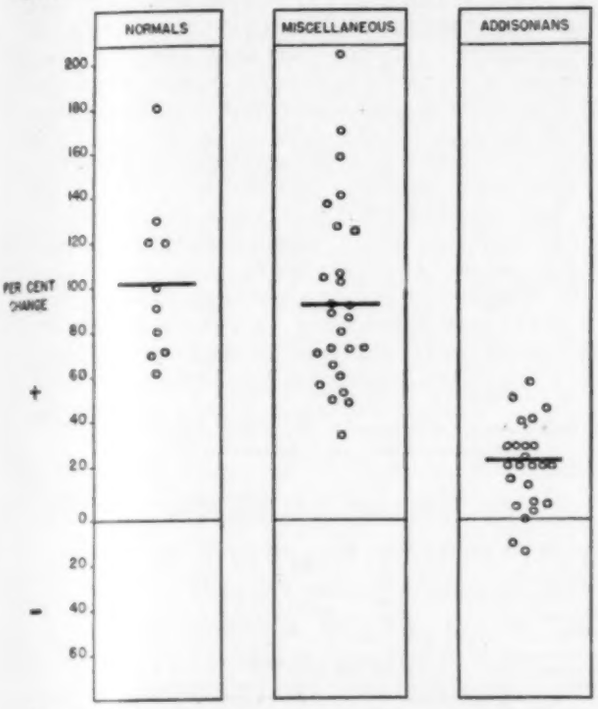

Fig. 4—Each circle represents the percentile change in uric acid-creatinine ratio observed in a single subject four hours after the intramuscular injection of 25 mg. of adrenocorticotropic hormone. The solid bar indicates the mean value for the group in each instance.

cases of mild Addison's disease and cases of chronic disease which present a subtotal diminution of this reserve.

In the interpretation of the test, two types of "false positive" reactions should be recog-

TABLE 1.—*Interpretation of Adrenocorticotropic Hormone Test*

Subject	Eosinophils 1 Cu. Mm.			Urinary Uric Acid Creatinine Ratio			Interpretation
	Initial, 8 A.M.	Final 12 M.	Change, Percentage	Initial 6-8 A.M.	Final 9-12M.	Change Percentage	
M.K., man, age 22, healthy 17-ketosteroids, 14 mg./day*	156	45	-71	0.36	0.79	+120	Normal response
I.K., woman, age 43 scleroderma with diffuse pigmentation and much weakness 17-ketosteroids, 5.3 mg./day	210	59	-72	0.61	1.05	+73	No adrenal cortical insufficiency
M.T., woman age 21, Addison's disease of 5 years' duration 17-ketosteroids, 0.4 mg./day	169	168	0	0.76	0.65	-14	Addison's disease

* The average normal twenty-four excretion of 17-ketosteroids for a man is 10 to 15 mg. and for a woman 8 to 10 mg.

nized, both of which will fail to show an increase in the fasting uric acid—creatinine ratio. In either case maximal excretion of uric acid is present before the administration of the hormone, due either to an overactive adrenal cortex or to certain extra-adrenal factors, namely, a decreased renal clearance or an abnormally high production of uric acid.

Any condition associated with acute stress may call out the entire reserve power of a perfectly normal adrenal cortex, and therefore the gland will no longer be susceptible to further stimulation. If the hormone is given

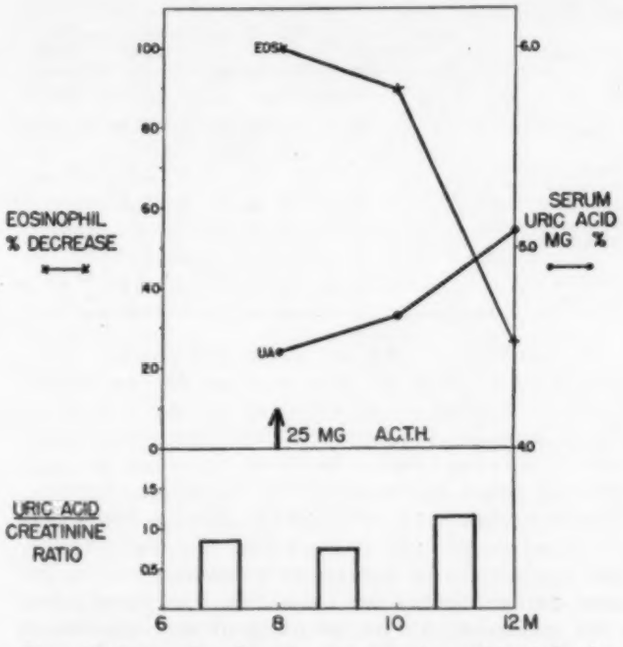

Fig. 5—Note the rise in serum uric acid with the minimal change in uric acid-creatinine ratio following intramuscular administration of adrenocorticotropic hormone.

in such circumstances, absence of the usual responses (decrease of eosinophils and increased urinary uric acid—creatinine ratio) constitutes evidence of temporary adrenal cortical depletion, but does not justify the diagnosis of chronic adrenal insufficiency. Clinical observation alone should suffice to prevent such misinterpretation. In these circumstances, moreover, one may observe an unduly high initial fasting uric acid-creatinine ratio as compared to the normal range (table 2).

E.M., a woman aged 27, was tested during an acute febrile period of an active Trichinella infestation associated with much malaise and prostration. There was a negative response to adrenocorticotropic hormone at this time, namely, a fall in eosinophils of only 8 per cent, due in large measure to the degree of acute allergic eosinophilia and partly to a poor adrenal cortical response, and a rise in uric acid of only 10 per cent. The fasting uric acid-creatinine ratio, however, was 1.24 (average normal 0.50, table 2). Maximal activity rather than absence of adrenal cortical reserve was suggested by the high initial ratio and supported by the finding of an 11-hydroxysteroid excretion of 1.34 mg. per day[8] at that time. Two weeks later, at a time when her temperature had been normal for several days and her clinical condition had improved greatly, the test was repeated, and the eosinophils fell 36 per cent and

8. Cutler, H.H.; Power, M.H., and Wilder, R.M.: Concentrations of Chloride, Sodium and Potassium in Urine and Blood: Their Diagnostic Significance in Adrenal Insufficiency, J.A.M.A. 111:117 (July 9) 1938.

the uric acid-creatinine ratio rose 103 per cent. The fasting uric acid-creatinine ratio was 0.81 during convalescence in contrast to the value of 1.3 derived during the height of the fever. These tests suggested that the adrenal cortex had apparently regained much of its reserve.

TABLE 2.—*Mean Fasting Urinary Uric Acid-Creatinine Ratio in a Group of Sixty Persons with Normal Renal Function*

Group	Mean Fasting Uric Acid–Creatinine Ratio					
	Males		Females		Mean	Mean Deviation
	No.	Ratio	No.	Ratio		
Normal	7	0.43	4	0.59	0.50	0.17
Miscellaneous diseases not involving the adrenal cortex primarily	12	0.54	14	0.68	0.63	0.15
Addison's disease	11	0.49	12	0.59	0.54	±0.15

At times a failure of the urinary uric acid-creatinine ratio to rise may be due to renal failure rather than adrenal insufficiency. Experimental evidence[2c] indicates that the adrenocorticotropic hormone induces an increased renal clearance as well as an increased production of uric acid. Thus, impaired renal clearance of uric acid may prove to be the factor which limits or prevents a rise in uric acid—creatinine ratio. In rare instances (for example, in cases of gout or leukemia) the physiologic limit of excretion of uric acid already has been reached before the administration of the hormone. In these circumstances only a minimal rise in uric acid—creatinine ratio will occur even though adrenal response is normal. In either case, however, this type of response will be accompanied with a fall in eosinophils and a rise in the level of uric acid in the serum.

M. McD., a women aged 53, with uncontrolled hyperthyroidism, had a basal metabolic rate of + 60 per cent and appeared to be unable to increase uric acid clearance. The results of the usual renal function tests were normal. When given the adrenocorticotropic hormone test she showed a fall in eosinophils of 85 per cent. The uric acid–creatinine ratio increased only 34 per cent from an initial value of 0.72 (high normal). There was, however, a significant rise in serum uric acid (fig. 4). The patient thus appeared to have adequate adrenal cortical reserve, as judged by a decrease in circulating eosinophils and a significant rise in the level of uric acid in the serum. Indeed, six weeks later, when the patient's basal metabolic rate had been reduced to + 12 per cent, her response to another adrenocorticotropic hormone test was entirely normal. Eosinophils fell 85 per cent; uric acid–creatinine ratio rose 91 per cent, and the serum uric acid did not change.

COMMENT

The two indexes of adrenal cortical function which are determined in this test depend presumably on the activity of only one group of cortical hormones, the steroids oxygenated at the C-11 and C-17 positions. This is demonstrated by the fact that such a steroid administered to either normal subjects or patients with Addison's disease causes a rise in the uric acid-creatinine ratio and a fall in circulating eosinophils (table 3); whereas desoxycorticosteronem which lacks the oxygen at the C-11 position, produces neither. The oxysteroids are known to be concerned with the regulation of carbohydrate, fat and protein metabolism. Strictly speaking, the test measures adrenal cortical reserve function only with respect to these factors. Adrenocorticotropic hormone has also been found to stimulate the secretion of the androgenic and electrolyte-regulating factors of the human adrenal cortex as well,[2c] but the measurement of these changes is complicated, and they do not lend themselves readily to use as a clinical test.

The simplicity of the present test permits its application not only to patients presenting signs and symptoms of primary adrenal cortical insufficiency but also to patients

TABLE 3.—*Effect of Adrenocorticotropic Hormone, Desoxycorticosterone and Compound F on Eosinophils and Excretion of Uric Acid*

	Number of Cases	Treatment	Percentage Fall in Eosinophils	Percentage Rise in Uric Acid-Creatinine Ratio
Normal subjects	8	25 mg. ACTH *	78	102
Normal subjects	2	30 mg. DCG. †	-4	24
Persons with Addisonian disease	16	25 mg. ACTH	0	22
Persons with Addisonian disease	3	20 mg. Compound F‡	71	57

* Adrenocorticotropic Hormone

† Dr. E. Oppenheimer of Ciba Pharmaceutical Products, Inc., supplied the water-soluble desoxycorticosterone glucoside.

‡ Compound F, 17-hydroxycorticosterone, was supplied by Dr. M. H. Kuizenga, of the UpJohn Company, Kalamazoo, Mich.

in various stages of adrenal exhaustion following a variety of stresses. In patients with adrenal insufficiency secondary to anterior pituitary deficiency a satisfactory response to adrenocorticotropic hormone is anticipated when the adrenal cortex has not undergone permanent atrophy; whereas patients with primary failure of both glands fail to react. The test should prove useful in obtaining an approximate estimate of the "carbohydrate-regulating" capacity of a patient with Addison's disease and will serve as a means of gaging the desirability of supplementary adrenal cortical extract therapy.

The dual character of the test (blood count and renal excretion) and the parenteral administration of hormone provide a highly specific response and offer some opportunity to bypass disorders of renal function which have limited the usefulness of other tests. As a screening test it supplements, but does not necessarily correlate with, the salt[8] and water[9] tests which estimate the desoxycorticosterone-like activity of the adrenal

10. Robinson, F.J.; Power, M.H., and Kepler, E.J.: The Two New Procedures to Assist in Recognition and Exclusion of Addison's Disease: Preliminary Report, Proc. Staff. Meet. Mayo Clin. 16:577, 1941.

cortex and the 17-ketosteroid determinations[10] which measure its androgenic activity. The test appears to correlate best with the excretion of 11-hydroxysteriods as estimated by chemical means.[11]

SUMMARY

Two striking and easily determined changes (a decrease in circulating eosinophils and a rise in excretion of uric acid) consistently follow the administration of a single dose of 25 mg. of purified pituitary adrenocorticotropic hormone to normal subjects and patients with diseases not involving the adrenal cortex. It is suggested that a decrease of 50 per cent or more in the urinary uric acid—creatinine ratio indicates adequate adrenal cortical reserve. The test as outlined appears to be a measure of the adrenal reserve of hormones regulating carbohydrate, fat and protein metabolism. The use of this test in the diagnosis of adrenal insufficiency is discussed.

10. Callow, N.H.; Callow, R.K., and Emmens, C.W.: 17-Ketosteroid Androgen and Estrogen Excretion in Urine of Cases of Gonadal and Adrenal Cortical Deficiency, J. Endocrinol. 2:88, 1940

11. Talbot, N.B.; Saltzman, A.H.; Wixon, R.L., and Wolfe, J.K.: Colorimetric Assay of Urinary Corticosteroid-Like Substances, J. Biol. Chem. 160:535, 1945.

DIPHTHERIA IMMUNIZATION

Use of an Alum-Precipitated Mixture of Pertussis Vaccine and Diphtheria Toxoid

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There has been a downward trend in United States mortality from diphtheria and pertussis, but current reports show that several thousand young children continue to die every year from these diseases. Many deaths from these diseases will be prevented when effective prophylactic agents are extensively used. Such agents will be used more extensively when demonstrated improvements are made which increase their protective efficiency, decrease the number of reactions and simplify their method of administration.

To these ends considerable progress has been made in recent years. Diphtheria prophylactic agents have progressively improved from the old toxin-antitoxin mixtures to fluid toxoid and, now, alum-precipitated diphtheria toxoid. In 1938 Harrison and his associates[1] introduced alum-precipitated pertussis vaccine and it became evident that the method for immunizing children might be simplified through mixing precipitated pertussis and diphtheria antigens for simultaneous administration. In 1940 Schutze concluded from animal experiments that the admixture of alum-precipitated toxoid and pertussis vaccine does not impair the antigenic potency of either product.[2] In 1938 to 1940 Volk and Bunney[3] found that two doses of alum-precipitated diphtheria toxoid, when given to children 8 months of age and older with a three-week interval between doses, were the simplest and most effective procedure for immunization against diphtheria. Simultaneously in 1938 to 1941 Bell[4] found that two doses of alum-precipitated pertussis vaccine, when given to children 2 months to 2 years of age with a four-week interval between doses, conferred substantial protection against pertussis. Successful immunization at this young age was later confirmed by Sako and his associates.[5] From 1941 to date many reports[6] have appeared which are favorable to the use of an alum-precipitated mixture of these antigens; however, reports covering well controlled trials in the general population are scanty. This is unfortunate because clinical trial and experience constitute the ultimate test of the value of any prophylactic agent.

A clinical trial of a prophylactic agent presents many difficulties and may easily be fraught with errors unless properly planned and carried out. There are many known and unknown attributes which influence immunologic phenomena, and unless a clinical trial takes all these influences into account, one can never be certain that a particular phenomenon was the result of a particular treatment given. This study of an alum-precipitated mixture of pertussis vaccine and diphtheria toxoid utilizes a method for evaluating the immunity conferred by this product which takes account of all known and unknown attributes which might influence immunity to these diseases. The data are too extensive for immediate analysis and inclusion in a single report; hence this report is limited to the aspects of the study which relate to diphtheria immunization. This report outlines the objectives and fundamental criteria which were predetermined as essential to account for all attributes which might influence diphtheria immunity. It describes the preparation of the antigens used and the procedures used to fulfill the fundamental criteria, and it makes an analytic check (tables 1, 2 and 3) on the effectiveness with which the criteria were fulfilled. The report identifies all known attributes which influenced diphtheria immunity in this study and takes account of these and unknown influences in evaluating the effects of the study product given.

OBJECTIVES

In 1941 a fully controlled epidemiologic trial of an alum-precipitated mixture of

Due to lack of space, the many persons who contributed to this study cannot all be mentioned in this initial report. Their particular contributions will be described in later more detailed reports. Dr. J. P. Leake conducted the study during part of the war years and Public Health Nurses Anne Hodges, Ruth Sargent and Edna McCaleb made the routine visits and recorded the basic observations of the study.

Read before the Section on Preventive and Industrial Medicine and Public Health at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

From the Division of Infectious Diseases, National Institute of Health, Bethesda, Md.

Medical Director J. P. Leake conducted this study in the author's absence during part of the years 1943 to 1945.

1. Harrison, W. T., Franklin, J. P., and Bell, J. A. Pub. Health Rep. 53:793, 1938.
2. Schutze, H. Lancet, 1940, 2:192, 1940.
3. Volk, V. K., and Bunney, W. E.: (a) Am. J. Pub. Health 29: 197, 1938; (b) (supp.) 30:42, 1940.
4. Bell, J. A. Pub. Health Rep. 56:1535, 1941.
5. Sako, W.; Treuting, W. L.; Witt, D. B., and Nichamin, S. J.: Early Immunization Against Pertussis with Alum-Precipitated Vaccine, J. A. M. A. 127:379, 1945.
6. (a) Simon, H. and Craster, C. V.: J. M. Soc. New Jersey, 38:461, 1941. (b) Kendrick, P. L.: J. Bact., 42:294, 1941; Am. J. Pub. Health, 32:615, 1942. (c) Am. J. Hyg., 38:193, 1943. (c) Daughtry-Denmark, L. Whooping Cough Vaccine, Am. J. Dis. Child. 63:453 (March) 1942. (d) Sauer, L. W., and Tucker, W. H. Proc. Inst. M. Chicago, 15:148, 1944. Sauer, L. W.; Tucker, W. H., and Markley, E.: Immunity Responses to Mixtures of Diphtheria Toxoid and Pertussis Vaccine, J. A. M. A., 125:949, 1944. (e) Miller, J. J., Jr.; Humber, J. B., and Downie, J. O.: J. Pediat. 24:281, 1944.

diphtheria toxoid and pertussis vaccine was undertaken in Norfolk, Va. The trial was carried out in a manner to show what could be expected through routine use of this product in young children of the community. The main objectives were to answer the four questions: (*a*) Will two doses of an alum-precipitated mixture of diphtheria toxoid and pertussis vaccine protect young children against diphtheria as well as ordinary alum-precipitated diphtheria toxoid? (*b*) Will the mixture give substantial protection against clinical pertussis? (*c*) Will the mixture protect against both diphtheria and pertussis when given to children 2 to 5 months of age? (*d*) Will the mixture cause more local or general reactions than ordinary alum-precipitated diphtheria toxoid?

attributes which might influence the occurrence of diphtheria or pertussis immunity (aside from the study products given) would be distributed between the two groups as equally as possible within the range of chance sampling variation.

(*d*) No person other than the visiting nurse observers and the physicians conducting the study should know that a study of pertussis vaccine is involved, and neither the nurses nor the physicians should know which child belonged to the test or control group, or which child received which study product, or whether any one child received the same product as any other child. This is essential to neutralize any possible human bias on the part of observers or informants in the recognition of immunologic phenomena. This is also essential to maintenance of the test and control groups as strictly

Table 1.—*A Comparison of the Number of Births and Families in the Study Area with the Number of Study Children and Families by Sex, Color and Family Size.*

		White		Negro		Total	
		Number	Percentage	Number	Percentage	Number	Percentage
Children	Sex						
Number of reported births in study area Jan. 1941 through April 1943	M	4,228		1,645		5,873	
	F	3,614		1,487		5,101	
	Total	7,842		3,132		10,974	
Number and percentage entering study	M	299	7.1	348	21.2	647	11.0
	F	292	8.1	299	20.1	591	11.6
	Total	591	7.5	647	20.7	1,238	11.3
Families	Size						
Estimated no. families in area with children < 10 years old	> 1 child	4,956		1,804		6,762	
	< 1 child	2,643		2,017		4,660	
	Total	7,599		3,821		11,420	
Number and percentage entering study	> 1 child	287	5.8	240	13.3	527	7.8
	< 1 child	279	10.6	358	17.7	637	13.7
	Total	566	7.4	598	15.7	1,164	10.2

FUNDAMENTAL CRITERIA FOR STUDY

To answer the foregoing questions on diphtheria immunity, it was predetermined that the following fundamental criteria would be essential for an adequate and fully controlled clinical trial of the mixed product. The criteria are listed as outlined in 1941 and all have been meticulously adhered to throughout the study.

(*a*) An alum-precipitated mixed or test product and an alum-precipitated unmixed or control product must be prepared so that each dose of each product contains the same quantity of alum-precipitated diphtheria toxoid from the same lot of crude toxoid. The test and control products must be prepared so that each will be identical in all respects except that each dose of the alum-precipitated diphtheria toxoid in the mixed product will contain 10,000,000,000 killed Hemophilus pertussis organisms.

(*b*) A study group of children must be preselected so as to be an adequate and representative sample of young children in a sizable United States community who are routinely available for voluntary immunizations. This is essential so that the results of the study may safely be projected to reflect the results expected from general use of the study products.

(*c*) A predetermined strictly random sampling procedure, based on a simple attribute entirely unrelated to immunologic phenomena, must be used to divide the study children into a test and a control group. This is essential to insure that all known and unknown random samples of the combined groups throughout the period of observation. When no one knows that pertussis vaccine has been given to any of the study children, no disproportionate treatment can be given to either of the random groups and all known and unknown attributes will have a nearly equal influence on each group; e.g., a nearly equal proportion of each group will receive pertussis vaccine by private physicians, and a nearly equal proportion of each group will depend on immunization rather than shielding their child from exposures to pertussis and other diseases.

(*e*) An intensive effort must be made to see that two doses of the test or control product are given to each study child as selected by the predetermined sampling process, that the products be given with a four-week interval between doses to children in the age band 2 to 23 months and that the products be given without inquiry or regard to a prior history of pertussis or pertussis vaccination. All children who receive at least one dose of the study product must be placed under uniform and routine monthly observation as long as they remain in the study area by one of the two specially trained public health nurses.[7]

7. Public Health Nurses Anne Hodges and Ruth Sargent carried out the previous study[1] and were the mainstays of the present study through the period covered by this report. Most of the Schick tests were carried out by Public Health Nurse Edna McCaleb under my supervision and that of Dr. J. P. Leake, who read and interpreted the Schick reactions in all children having any reaction whatsoever.

(f) A controlled Schick test is to be used as an index of diphtheria immunity, and a single lot of Schick toxin is to be used throughout the study, providing tests on animals indicate its potency is maintained. An intensive effort must be made to give Schick tests to all children remaining under observation one year after receiving the study products and simultaneously to give Schick tests to the mothers of such children. All disease diagnoses must be made, and all Schick reactions read and classified by me or by Dr. J. P. Leake.

Table 2.—*A Comparison of Children Born in the Odd with Those Born in the Even Months According to Specified Attributes*

Attributes	Month of Birth of Child Odd	Even	Total	Percentage Odd
Total no. of children entering study	646	592	1,238	52.2
Male	337	310	647	52.1
Female	309	282	591	52.3
	146	128	274	53.3
Health section at entry 4-6, 9-11	166	151	317	52.4
Health section at entry 1, 12, 14 Total white	312	279	591	52.8
Health section at entry 2,3,13	105	112	217	48.4
Health section at entry 7,8	229	201	430	53.3
Total Negro	334	313	647	51.6
1st dose injected Jan-June 1942	337	324	661	51.0
1st dose injected July 1942-June 1943	309	268	577	53.6
1st dose age 2-4 months	281	256	537	52.3
1st dose age 5-23 months	365	336	701	52.1
Others age <10 in household at entry	366	345	711	51.5
No others age< 10 in household at entry	280	247	527	53.1
Mothers of children given Schick test	367	340	707	51.9
Lost from observation prior to Schick test	103	100	203	50.7
Observed and given Schick test	540	485	1,025	52.7
Rec'd 2 doses mixed product	461	11	472	97.7
Rec'd 2 doses unmixed product	13	410	423	3.1
Other (1 dose aa, 1 dose, etc.)	66	64	130	50

PREPARATION OF STUDY PRODUCTS

The study products used were prepared by Parke, Davis and Company according to my specifications. They were purchased in 1941 in a quantity sufficient for the entire study and stored until used at 4 to 7 C. A single lot of fluid diphtheria toxoid was used in the preparation of both the mixed and unmixed product. For the mixed product 2 parts of the toxoid were mixed with 1 part of a suspension containing 30,000,000,000 phase I H. pertussis organisms per cubic centimeter which were grown on Sauer's blood agar and killed with a 1:10,000 solution of "merthiolate." For the unmixed product 2 parts of the toxoid were mixed with 1 part isotonic solution of sodium chloride instead of the pertussis suspension. Separately the mixed and unmixed products were then precipitated by adding 4 per cent alum solution and the precipitates washed twice. The products were passed through a colloid machine in order to obtain a fine division of the alum precipitate and finally were subjected to the usual sterility and safety tests. Titrations of both the mixed and unmixed products indicated that there was slightly less than 0.1 per cent alum equivalent in each. The crude toxoid had a least fatal dose value of 9, and each dose of the mixed and unmixed products by calculation had a least fatal dose value of 6 and an L+ value of 0.30 unit per dose.[8] Each dose of the mixed and unmixed product contained the same quanity of diphtheria toxoid and differed only in that each dose of the mixed product contained 10,000,000,000 killed H. pertussis organisms.

STUDY PROCEDURE

The study is being conducted in cooperation with the Norfolk City Union of the King's Daughters Visiting Nurse Association and with the assistance of the state and local health departments and physicians. The study area is in Virginia and comprises the cities of Norfolk and South Norfolk and the Tanners Creek District of Norfolk County. The population of the entire area is estimated at 250,000, of which 69 per cent are white and 31 per cent Negro. The study area was divided into fourteen geographic subdivisions in an effort to group people according to their usual associations at schools, churches, theaters and shopping centers. Each geographic section contained one King's Daughters Well Baby Health Station, and diphtheria immunization was urged for all infants 2 to 23 months old who attended these stations from January 1942 to July 1943. Using the current birth certificates in Norfolk, the Health

8. Dr. D. R. Mathieson, under direction of Dr. Noble Ferry and the late Dr. L. T. Clark, all of Parke, Davis and Company laboratories, carried out a few laboratory tests with the mixed product. The results were: "A. 100 per cent of sixteen 270 Gm. guinea pigs survived six weeks when challenged in groups of 4 with 10, 20, 40 and 80 minimum lethal doses of Corynebacterium diphtheriae toxin, respectively. Three such guinea pigs out of 4 similarly survived 160 minimum lethal doses. All had previously received a 1 cc. subcutaneous dose of the mixed antigen. Five such guinea pigs used as controls received no previous antigen and all died within six weeks after receiving only 1 minimum lethal dose of the same diphtheria toxin. B. Eighteen guinea pigs inoculated with the mixed antigen and then sacrificed fourteen days after receiving 10 to 160 minimum lethal doses of diphtheria toxin showed not the slightest vestige of reaction to the toxin, whereas the 1 control guinea pig given only 1 minimum lethal dose died in four days showing pleural effusion and massive hemorrhages of the adrenals, subcutaneous tissue, and abdominal muscles at the site of inoculation."

Department sent letters to the mothers of all 2 to 12 month old children urging immunization against diphtheria and smallpox. Local health department personnel administered the study products, and neither they nor the recipients knew that pertussis vaccine was involved in the study. The mixed and unmixed products were in 20 dose identical vials, each of which was numbered and labeled only "A-P Diphtheria Toxoid." If a code combination of the digits of a vial number was odd, it was to be given to children born in an odd month; i.e., January, March, May, etc. If the code combination was even, it was to be given to children born in an even month, February, April, June, etc. Thus birth in an odd or even month was the basis for dividing the children into a random test group and a control group each of which would have a nearly equal distribution of all known and unknown attributes which might influence diphtheria or pertussis immunity. At the health station an identifying record card was prepared for each child, and the card turned over to the Public Health Service visiting nurses after the child had received two doses, or in any event after two months had elapsed since the first dose. The visiting nurses prepared household rosters and made routine monthly visits, and more frequent visits during the occurrence of communicable disease, to all study children and have continued such visits to date. Under my close supervision and that of Dr. Leake the nurses made a record of all known and suspected attributes which might influence diphtheria or pertussis immunity. No child has been dropped from the study unless he permanently moved away from the area or otherwise became non locatable. Neither the visiting nurses nor I knew which children received which product, or which child belonged to which group, or whether any child received the same product as any other child.

Table 3.— *A Time Comparison of Schick Test Results and Laboratory Tests for Potency of the Schick Toxin Used-Lot AS3*

		Clinic No.	No. Tested	No. +	% +	Test No.	No. of G. Pigs	Cc. Diluted Toxin Per Pig.	Avg. No. of Days Survived
	July					I	5	5	3.9
1942							5	5	4.4
	Sept.					II	5	5	3.4
	Jan.	I	220	29	13	III	5	5	3.4
	Feb–March								
	May	II	618	81	13	IV	5	5	4.2
	June								
1943									
	July					V	2	5	3.7
							2	7	3.8
	Aug-Sept.	III	279	39	14				
	Nov.	IV	201	32	16				
	Feb.	V	190	34	18				
1944									
	May-July	VI	207	26	13				
1945	Feb-May	VII	17	2	12				
1946									
1947	Jan.					VI	4	5	4.1
							1	5	9.5
	Total	I-VII	1,732	243	14	I-VI	2	5	4.2
							2	7	3.8

From February 1943 to July 1944, six regular Schick testing clinics were held and an effort made to give the Schick test to all children who received the first dose of the study products twelve or more months previously. In February and again in May 1945, an effort was made to give the Schick test to the few remaining children who were under observation and who had not been tested previously at the regular clinics. All mothers who accompanied children at the time of the Schick test were invited to have a Schick test. A single lot of Schick

toxin, stabilized with human serum,[9] was used throughout the study. It was tested for potency in guinea pigs at various intervals. All Schick reactions were read on the fourth or seventh day by me or by Dr. J. P. Leake. All were classified as either positive or negative, as a decision had to be made with respect to further immunization.[10]

TABLE 4.—*Results of Schick Tests in Children 1 Year After Receiving the Mixed and Unmixed Product According to Specified Attributes.*

Attributes	Product Received: Mixed (Odd) No.	No.	+%+	"P"*	Unmixed (Even) No.	No.	+%+	"P"	Total No.	No.	+%+	"P"
1. Received one dose	42	8	19	.001	55	23	42	.000	97	31	32	.000
Received two doses	472	24	5		423	63	15		895	87	10	
2. Section 4-6, 9-10	106	3	3	.938	86	11	13	.250	192	14	7	.352
Section 1, 2, 14	97	2	2		83	16	19		180	18	10	
3. Section 2, 3, 13	90	7	8	.943	87	15	17	.312	177	22	12	.308
Section 7, 8	179	12	7		167	21	13		346	33	10	
4. Male	243	13	5	.787	229	36	16	.604	472	49	10	.481
Female	229	11	5		194	27	14		423	38	9	
5. Measles, chickenpox, mumps	117	4	3	.482	91	13	14	.854	208	17	8	.390
No measles, chickenpox, mumps	355	20	6		332	50	15		687	70	10	
6. W.C. vaccine outside study	86	2	2	.309	74	14	19	.284	160	16	10	.895
No W. C. vaccine outside study	386	22	6		349	49	14		735	71	10	
7. Mother Schick positive	57	1	2	.366	50	6	12	.485	107	7	7	.223
Mother Schick negative	282	16	6		244	42	17		526	58	11	
8. Given injection before July 1942	239	12	5	.952	224	32	14	.710	463	44	10	.820
Given injection after July 1942	233	12	5		199	31	16		432	43	10	
9. < 6 weeks between doses	334	14	4	.169	308	48	16	.514	642	62	10	.919
> 5 weeks between doses	138	10	7		115	15	13		253	25	10	
10. 2d dose to Schick< 11 mo.	191	12	6	.329	178	23	13	.331	369	35	10	.842
2d dose to Schick > 10 mo.	281	12	4		245	40	16		526	52	10	
11. Schick at< 18 mo. old	232	14	6	.356	220	37	17	.247	452	51	11	.111
Schick at >17 mo. old	240	10	4		203	26	13		443	36	8	
12. 2d dose age 2-5 months	201	15	8	.070	187	40	21	.000	388	55	14	.000
2d dose age> 5 months	271	9	3		236	23	10		507	32	6	
13. Breast fed at 1st dose	220	16	7	.111	205	36	18	.202	425	52	12	.031
Not breast fed at 1st dose	231	8	4		193	25	13		424	33	8	
14. White	203	5	3	.041	169	27	16	.610	372	32	9	.341
Negro	269	19	7		254	36	14		523	55	11	
15. Others age< 10 in household	291	22	8	.004	250	41	16	.296	541	63	12	.016
No others age< 10 in household	181	2	1		173	22	13		354	24	7	

* "P" equals the probability of occurrence of this distribution by chance.

EFFECTIVENESS WITH WHICH CRITERIA WERE CARRIED OUT

Table 1 was prepared to check the effectiveness with which the method pursued in obtaining the study children provided a study group which was an adequate and representative sample of all young children in the area who are routinely available for voluntary immunization. The method of selection must be relied on to establish representativeness, but a few crude checks are available. If the study group is representative it would be expected to have a disproportionately large number of children from large families, to have a disproportionately large number of Negro children, and to have no disproportion by sex.[11] Table 1 compares the study group with estimates prepared from vital statistics reports on color, sex and family size. It shows that the expectations were fulfilled. This crude but confirmatory check permits the belief that the study group is adequate in size and representative to the extent that the results from the use of the study products may be projected to portray that which would result from their routine use in the study area.

Table 2 was prepared to check the effectiveness with which the sampling procedure was carried out to divide the study children into a comparable test and control group. The predetermined and meticulously executed random sampling procedure based on an odd or even month of birth (an attribute entirely unrelated to diphtheria or pertussis immunity) should divide the study children into a test and a control group so that each group will have a nearly equal distribution of all known and unknown attributes which might influence the occurrence of diphtheria or pertussis immunity aside from the influence of the study products given. This can be checked by observing whether all known and suspected

9. The Schick toxin and the heated control material used were prepared by Dr Geoffrey Edsall at the Antitoxin and Vaccine Laboratory of the Massachusetts Department of Health (Edsall, G., and Wyman, L.: Am. J. Pub. Health **34**: 365, 1944). In October 1942 he sent to the National Institute of Health a quantity of the diluted material sufficient for the entire study. It was promptly placed in the refrigerator, where the temperature was kept between 4 and 7 C. A quantity sufficient only for each clinic was transported to Norfolk in ice and kept on ice until the day of use.

10. Many of the Schick reactions were observed on the second, fourth and seventh day. Observation consisted of measuring and recording the transverse and longitudinal diameters of each zone of reaction at the test and control site and noting the presence of redness, edema, wrinkling and desquamation. Reactions were classified according to the area of clear definite redness on the fourth to seventh day following injection. The area was computed by assuming it equivalent to a circle with a diameter equal to the mean of the vertical and transverse measurements. If the area of redness at the test site exceeded the area of redness (if any) at the control site by the area of a circle 10 mm. in diameter, the reaction was classified positive; otherwise the reaction was classified negative. The reaction was classified negative in the few instances in which definite evidence existed that the maximum local reaction at the test site occurred within forty-eight hours after injection and the nature of the reaction was similar to that at the control site. The reaction was classified as positive in a few instances (particularly in the Negro where discolorations are less evident than in the white skin) in which, because of the intensity and duration of the reaction, the original observer (J.A.B. or J.P.L.) judged it to be positive even though the measured area of redness was slightly less than has been set forth. All reactions were observed and classified without knowledge as to what immunizations the child may have received.

11. These are the characteristics expected in groups of children who respond to routine public pleas for immunization and constitute the mass of children generally immunized.

attributes are equally distributed within reasonable limits of chance sampling variation. It must be pointed out, however, that only a check can be made and that the meticulous execution of an adequate and predetermined sampling procedure is the all important factor. In the absence of such a procedure there can be no assurance that a disproportionate distribution of an unknown attribute may not have occurred and significantly influenced the results in an unknown manner and to an unknown extent.

Table 2 shows that 52.2 per cent of the total 1,238 children who entered the study were born in an odd month. It lists a few known and suspected attributes which might influence diphtheria or pertussis immunity in this study. (Others may be observed in table 4.) It will be noted that in all attributes except those relating to the study products given, close to 52 per cent of the children were born in an odd month. It is also pertinent to note that some 97 per cent of the children receiving two doses of the same product received the product intended. Twenty-four children, 13 odd and 11 even, received two doses of the wrong product because they gave the wrong birth date at both visits to the clinic for injection. They are hereafter tabulated according to the product received. Thirty-three children, 24 odd and 9 even, received one dose of each product. A few of these gave the wrong birth date at one clinic, but the disproportion was due entirely to the fact that in the early part of the study the persons giving the study products thought that the number zero on a vial was an odd number. This was promptly corrected, and although these 33 children have been carried under observation, they are not counted in tabulations comparing the study products. In table 4 it is pertinent to note that of the small percentage of children who received pertussis vaccine prior to Schick test from sources outside the study 53.8 per cent were born in an odd month. This confirms the statement that none of the parents knew that pertussis vaccine was involved in the study. It is obvious that the procedures used in this study gave two groups of children, one of which received two doses of the mixed and one of which received two doses of the unmixed product, and each of which had a nearly equal distribution of all known and suspected attributes which might influence diphtheria or pertussis immunity in these children. Aside from the study products given, no one of these attributes deviated beyond what might be expected through chance sampling variation, thus confirming that the sampling procedure was effectively carried out and insuring that all unknown attributes are similarly distributed between the two groups.

Table 3 was prepared to check whether the single lot of Schick toxin used throughout the Schick testing period remained of uniform potency. In each of the seven groups of mothers and children given Schick tests at various time intervals there was no significant variation in the percentage of positive reactions. In the laboratory tests all animals used died and had pathologic changes demonstrating death from diphtheria toxin. There was no significant variation in the average survival time at the different dates on which the toxin was tested. Thus it is concluded that the Schick toxin used remained remarkably uniform in potency throughout its long period of use.

RESULTS

Table 4 was prepared to identify attributes which may have influenced the Schick reaction. It lists all known and suspected attributes which might influence diphtheria immunity and shows for each the results of Schick tests performed one year after immunization. It shows the number of children tested according to the product received and the number and percentage who were Schick positive; i.e., who failed to be immunized. The "P" is the calculated probability of a difference in the number of Schick reactors as great or greater than observed occurring through chance sampling variation of independent attributes. Yates modification of Chi square was used in computing the "P" on all fourfold tables having less than 10 persons in any cell. In attribute 1, 32 per cent of the children who received only one dose of a known product were Schick positive as compared with 10 per cent who received two doses. This difference is consistent and significant both in the children receiving the mixed and in those receiving the unmixed product. On account of this finding the remainder of table 4 includes only children who received two doses of the same known product. It will be noted that children receiving the unmixed product had about three times as many Schick positive reactions as those receiving the mixed product, and this difference is consistent and fairly uniform throughout all attributes tested. It will be noted that attributes 2 to 11 inclusive were not significantly associated with the Schick reaction in this experience.[12] In attribute 12, age at time of injection, it is significant that children who received both their doses before they were 6 months of age had a higher proportion of Schick positive reactions than those who received at least one of their doses when they were 6 months of age or over. It will be noted that there is an association of questionable significance between the Schick reaction and the remaining attributes 13, 14 and 15. In summary of table 4 it appears that the Schick reaction is definitely correlated with the type of study product received, the number of doses received and the age at time of injection. There appears to be a correlation of questionable significance between the Schick reaction and the attributes concerning breast feeding at time of first dose, race and the presence or absence of other children in the household less than 10 years of age. There appears to be no correlation between the Schick reaction and any of the other attributes observed.

The significant correlations observed in table 4 do not suffice to answer the questions propounded on diphtheria immunity. For example, it is obvious that the group of children given injections at the earlier age must include a large proportion of children who were still feeding at the breast, and it must be determined whether age at time of injection or breast feeding or both were responsible for the correlations. Other similar but perhaps not so obvious relationships may exist between the various attributes listed in table 4. Thus it is necessary to examine further all the correlations observed in order to answer the questions propounded on diphtheria immunity. This involves a multitude of tabulations, far too many for publication, and hence only table 5 is presented to exemplify the procedure used.

Table 5 was prepared to determine whether the questionable correlation between the Schick reaction and breast feeding at time of first dose was due to breast

12. Some of these attributes are known to be correlated with the Schick reaction in the general population; e.g., no. 11, age at time of Schick test. This study was designed to minimize the influence of attributes not pertinent to the questions propounded. For the vast majority of children the age spread at time of the Schick test was less than fourteen months, and thus no significant age correlation was to be expected.

feeding or to the result of interrelationship with other attributes. It shows the results of the Schick test according to breast feeding at first dose among the 849 children who received two doses of the study product and on whom a history of breast feeding was obtained. The total group of 849 children are subdivided according to the age at time of injection, the presence or absence of other children less than 10 years of age in their household, and the study product received. In each subdivision the number of children tested and the observed number of Schick positive reactions is recorded and the "T," the theoretically expected number of reaction after adjusting for each of the other three attributes. The adjustment did not alter the significance of any of these attributes. Each was then checked against all other attributes listed in table 4, and the observed differences were remarkably consistent so far as the small numbers would permit comparison. Thus it is evident that only four of the attributes observed are significantly correlated with the Schick reaction in this study and that each of these four is independently significant after taking account of all other attributes: 1. Children receiving two doses of either product had disproportionately fewer Schick positive reactions than children receiving only one dose of the same product. 2. Children receiving their second dose of either product

Table 5.-- *Results of Schick Test by Duration of Breast Feeding After Adjusting for Influence of Other Attributes*

Product Rec'd	No. other children in h'hold	Age at Last dose, months	Breast Feeding at First Dose						Total		
			Breast Fed			Not Breast Fed					
			No.	No. +	"T" +	No.	No. +	"T" +	No.	No. +	% +
Mixed	None	2-5	43	0	1.2	27	2	0.8	70	2	2.9
		>5	33	0	-	70	0	-	103	0	-
	1 or more	2-5	89	11	9.0	39	2	4.0	128	13	10.2
		>5	55	5	3.3	95	4	5.7	150	9	6.0
Unmixed	None	2-5	56	6	8.4	24	6	3.6	80	12	15.0
		>5	20	0	2.0	61	8	6.0	81	8	9.9
	1 or more	2-5	76	23	20.6	20	3	5.4	96	26	27.1
		>5	53	7	5.6	88	8	9.4	141	15	10.6
	Total		425	52	50.1	424	33	34.9	849	85	

Computation of Chi Square, Adjusted Experience

	Breast Fed		Not B. Fed		Total	Adjusted
	Observed	Theoretical	Observed	Theoretical		Chi Square = 0.1944
Schick positive	52	50.1	33	34.9	85	"p" = .659
						Unadjusted
Schick negative	373	374.9	391	389.1	764	Chi Square = 4.6700
Total	425		424		849	"p" = .031

positive reactions, is computed. The computation is based on the assumption that breast feeding exerted no influence on the Schick reaction, and the "T" is derived by applying the percentage positive in the total of each subdivision to the number of children tested. By summation it is found that among the 425 children who were still feeding at the breast at first dose 52 Schick positive reactions were observed and 50 Schick positive reactions were expected after adjusting for the influence of other attributes. Thus it is concluded that breast feeding did not significantly influence the Schick reaction in this experience. A table was prepared and treated precisely in the same manner as table 5 except that race was substituted for breast feeding. The computed "P" was .688, and it is concluded that race did not significantly influence the Schick reaction in this experience.

Similar tables were prepared to determine whether the age at last dose, the presence of other children less than 10 years old in the household, the product received the number of doses received influenced the Schick at 6 to 23 months of age had disproportionately fewer Schick positive reactions than children receiving their second dose of the same product at 2 to 5 months of age. 3. Children receiving the mixed product had disproportionately fewer Schick positive reactions than children receiving the unmixed product. After adjusting for the combined influence of significant attributes the ratio of the percentage of Schick positive reactions among children receiving the mixed as compared with those receiving the unmixed product was 1:3. 4. Children living in single child households had disproportionately fewer Schick positive reactions than children living in households with other children less than 10 years of age.[13]

To the foregoing observations an over-all consideration should be added. In the absence of artificial immunization few children 6 to 30 months of age are immune to diphtheria, whereas adults for the most part are immune. In this study a total of 1,025 children of median age 18 months were given Schick tests one

13. This observation would appear to be incompatible with existing theories on the natural acquisition of diphtheria immunity. It is receiving further study.

year after they were given only one or two doses of the mixed or unmixed study products, and 90.6 per cent were found immune, whereas of the 707 mothers given Schick tests 82.3 per cent were found immune, as measured by the Schick test. Thus the over-all effort to immunize at a young age was highly successful. With respect to the age of immunization and the products given it should be noted that although children 2 to 5 months of age were not immunized as well as children 6 to 23 months of age, as indicated by the Schick test, the mixed product was so superior to the unmixed product that it appeared to be a better immunizing agent at the young age than the unmixed product at any age. Actually 8 per cent (15 out of 201) of the children who received both doses of the mixed product at 2 to 5 months of age had Schick positive reactions, as compared with 11 per cent (19 out of 175) of the children who received both doses of the unmixed product at 6 to 23 months of age.

SUMMARY AND CONCLUSIONS

A method has been described for designing and carrying out a fully controlled clinical trial of a prophylactic agent for immunizing young children in the general population against diphtheria.

The routine use of an alum-precipitated mixture of diphtheria toxoid and pertussis vaccine as prepared for this study and given in two doses with a four-week interval between doses to young children in Norfolk, Va., and a similar community, not only should result in a better protection against diphtheria, as measured by the Schick test, than that which would result from the similar use of ordinary unmixed alum-precipitated diphtheria toxoid but also should be effective for diphtheria immunization when given to infants 2 to 5 months of age.

The use of a Schick test performed one year after immunization as an index of diphtheria immunity revealed:

1. Children who received two doses of the unmixed alum-precipitated diphtheria toxoid had three times as many failures to immunize against diphtheria as children who received two doses of the alum-precipitated mixture of diphtheria toxoid and pertussis vaccine. Children who received only one dose of these products exhibited a similar difference.

2. Children who received only one dose had three times as many failures to immunize against diphtheria as children who received two doses. This was true no matter which product was given.

3. Children who received both doses at 2 to 5 months of age had twice as many failures to immunize against diphtheria as children who received at least one of their doses at 6 to 23 months of age. This was true no matter which product was given.

4. Children who received two doses of the mixed product before they were 6 months of age had fewer failures to immunize against diphtheria than children receiving the ordinary unmixed product at any age from 2 to 23 months.

ABSTRACT OF DISCUSSION

Dr. Harold B. Wood, Harrisburg, Pa.: These laborious investigations are worth while, and the investigators deserve thanks from everybody. In the immunization of children there is a question of to what extent Schick testing should be done. Frequently city or state organizations have certain amounts appropriated for such work. Is it worth while to give Schick tests to those children who have received their immunizing doses? I do not think so. Where the appropriation is limited, it is much better, to consider that a certain percentage are immunized already from their first series of doses, and use the rest of the money to immunize more children, rather than to go back and pick the Schick test for those children who have already received their immunizing doses. That is the problem we are up against frequently, and it is better, I believe, to carry on that plan. The new toxoid toxin-antitoxin which Dr. Ross explained seems to be an advantage because, if there is one thing we need in the Schick testing, it is a better way to determine definitely what is positive and what is negative. It is much easier to get children and their parents out for the immunizing doses than it is for the Schick retesting to determine the definite positive and what is negative. It is much easier to get children and their parents out for the immuch easier to get children and their parents out for the immunizing doses than it is for the Schick retesting to determine the definite positive immunity granted; therefore, why bother with that in general work? Of course, these remarks have no reference whatsoever to children in institutions which are under definite, lengthy control. Reprints of papers like these should always go into the library of the Hygienic Laboratory and also to the principal state authorities, if the authors are willing to send them.

Dr. Maxwell Stillerman, Great Neck, Long Island, N. Y.: What was the incidence of sterile abscess reactions in your series?

Dr. James P. Leake, Washington, D. C.: May I remark that my associates and I think the preferable term is "cyst" and not "sterile abscess." They are not sterile abscesses but little cysts, which tend to absorb themselves.

Dr. Joseph A. Bell, Bethesda, Md.: The mixed product as prepared and used in this study at 2 to 5 months of age was a better immunizing agent, that is, produced disproportionately fewer Schick positive reactions, than the unmixed product given at any age from 2 to 23 months. However, neither the mixed nor the unmixed product immunized as well when given at 2 to 5 months of age as when given at 6 to 23 months of age. Table 4, attribute 12, shows the number of Schick positive reactions by age at time of injection. There was no significant association between the mothers' and children's Schick reaction in this study. The mothers were given Schick tests not only to give evidence with respect to the potency of the Schick toxin but also because it was considered possible that some association between the mothers' and children's Schick reaction would occur. If the children had been given Schick tests when less than 6 months of age and if they had received no diphtheria toxoid prior to the Schick test, some association between the mothers' and children's Schick reaction might have been evident. In this study all the children received diphtheria toxoid one year prior to the Schick test. With respect to Dr. Stillerman's question, the local and general reactions resulting from the use of the mixed and unmixed products in this study were so few and insignificant that to date no tabulations of their occurrence have been made. The Health Department personnel who administered the study products were instructed to use a different needle for each injection and to inject the products deeply into the loose subcutaneous tissue. I do not know whether the lack of reactions was the result of the method of injection or the small number of H. pertussis organisms injected with the mixed product, or whether it was due to other factors.

Whales.—Since the period of gestation is stated to be just over ten months for blue whales and eleven and a half months for fin whales, and the addition of the suckling period of six or seven months gives a total of about eighteen month from conception before the calf can fend for itself, it is obvious that the legal size limit has been fixed too low to be effective in preserving the stock Hamilton, J. E., *Nature*, June 12, 1948.

CESAREAN HYSTERECTOMY AT THE CHICAGO LYING-IN HOSPITAL

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The mortality for cesarean hysterectomy at this hospital was reported[1] in 1945 to be 1.04 per cent and for cesarean section to be 0.61 per cent. Ninety-six cesarean hysterectomies with 1 death were mentioned in the report, and the statement was made that hysterectomy is the operation of choice in infected or potentially infected patients. There have been reports from several clinics advocating extraperitoneal section instead of cesarean hysterectomy in the treatment of infected or potentially infected patients. Cosgrove and Waters,[2] reporting from the Margaret Hague Hospital, had the largest series of extraperitoneal sections and had excellent results in the type of case under discussion. They maintained that hysterectomy in such seriously ill patients is a formidable procedure and its immediate mortality must be high. They pointed out that of the 96 cesarean hysterectomies reported by Dieckmann not all were performed for infection but some were undoubtedly elective operations. This report is an analysis of our indications for the hysterectomies and of the complications and an explanation as to why the removal of the uterus, if properly carried out, will have the lowest mortality in infected patients.

A collective review by Dieckmann in 1945 of deaths after cesarean section showed that the average mortality in maternity hospitals was 1.46 per cent and that almost half of the deaths were due to infection, peritonitis being the chief cause of death. The average mortality for cesarean hysterectomy in four maternity hospitals was 4.3 per cent, with a range of 1 to 14 per cent. Cosgrove and Waters stated that 6 deaths following cesarean section for disproportion were due to peritonitis. Two years ago they reported[2] 483 extraperitoneal sections with 6 maternal deaths (5 due to infection), a mortality rate of 1.24 per cent. Since most of their operations were performed in infected or potentially infected patients (whom we would have delivered vaginally, if necessary by craniotomy, or by cesarean hysterectomy), this low mortality convinced us that this type of operation in the potentially infected patient is far superior to laparotrachelotomy and to difficult vaginal deliveries with their high fetal mortality and maternal injuries, but has not convinced us that it is safer than cesarean hysterectomy in infected patients.

One of us (W.J.D.) has seen autopsies after 8 cesarean sections, 3 after laparotrachelotomy and 5 after classic cesarean section, and in each instance the sutures were not holding and lochia and pus were draining into the abdominal cavity. We believe that in infected patients the abdomen is able to take care of the ordinary amount of spill, but if the postpartum uterus, which is an excellent nidus, is not removed it acts as a focus for continued dissemination of bacteria into the abdominal cavity and into the blood and lymphatic systems. However, if the entire uterus is not removed in the infected patient or at least down to within 2 cm. of the external os, not only is the safety of the operation lost but the added manipulation plus the remaining traumatized uterus adds to the danger. We are not concerned about the peritoneal contamination from buttonholing the peritoneum during an extraperitoneal section but are concerned with the damaged area of peritoneum, no matter how ligated, as being the place for infected uterine contents to gain access to the abdomen.

Cosgrove and Waters have questioned the value that we attribute to Baldwin's treatment of puerperal infection by early hysterectomy. Seventy-seven per cent of Baldwin's[3] patients had pus in the uterine wall or in the tissues around the uterus at the time of the operation, and we think that the mortality without the hysterectomy would have been close to 100 per cent. He had 30 per cent mortality in his first 67 cases, 18 per cent in his next 17 and no deaths in the following 6. We can recall autopsies in which the infection was localized in a small area in the puerperal uterus, in which, had it been removed early enough, the outcome might have been different. We can also recall patients who had a cesarean hysterectomy for infection, either potential or actual, who were extremely ill for weeks and who, we believe, would have died had the uterus not been removed.

DATA ON CESAREAN SECTION AND HYSTERECTOMY

We do not propose to make extensive citations from the literature; however, Harris'[4] study is especially pertinent. His report in 1922 of 64 cesarean hysterectomies performed at Johns Hopkins Hospital with 3 deaths, a mortality of 4.7 per cent, corrected 1.6 per cent, with no deaths from infection, demonstrates what could be done before the days of blood transfusions and antibiotics. The policy at Johns Hopkins Hospital was to remove the uterus in patients who were hopelessly deformed or mentally defective at the time of the third cesarean section or if there was

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From the Department of Obstetrics and Gynecology of the University of Chicago and the Chicago Lying-in Hospital.

1. Dieckmann, W. J.: Am. J. Obst. & Gynec. 50:28, 1945.
2. Cosgrove, S., and Waters, E.: Am. J. Obst. & Gynec. 52:237, 1946.
3. Baldwin, J. F.: Tr. Am. Gynec. Soc. (1929) 42:96, 1930.
4. Harris, J. W.: Bull. Johns Hopkins Hosp. 33:318, 1922.

evidence of infection. Of 27 patients who were operated on before or early in labor, histologic evidence of infection was found in only 1. There was clinical evidence of infection in 18 of the 28 patients who had been in labor for a long time or on whom attempts at induction or delivery had been made, and 23 of these uteri showed histologic evidence of infection. Harris concluded that cesarean hysterectomy is the operation of choice in patients who are potentially infected.

A review of the literature does make one wonder about the relatively low incidence, 0.2 to 2 per cent, of cesarean hysterectomy. For example, De Normandie[5] in his five year study of 11,030 cesarean sections in Massachusetts reported that there were only 147 hysterectomies, 1.3 per cent, with a mortality of 9.5 per cent.

Irving[6] in 1945 stated that in the preceding ten years at the Boston Lying-in Hospital there were only 32 cesarean hysterectomies.

Reis and De Costa[7] in a recent article reviewed the history of cesarean hysterectomy and in the United States collected 25,028 cesarean sections and only 636 hysterectomies, an incidence for the latter of 2.5 per cent and a mortality of 5.2 per cent. The incidence and mortality in their own series were 4.5 and 0 per cent, respectively. The morbidity was 39 per cent, which they stated was much less than what they found after cesarean section. Reis and De Costa attributed the reduced morbidity to the fact that hysterectomy removes the potentially infected thrombotic placental site and to the substitution of a short incision with opportunity for spontaneous drainage for the longer buried uterine incision.

TABLE 1.—*Cesarean Section and Hysterectomy at the Chicago Lying-In Hospital*

Years	Deliveries	Cesarean Section		Maternal Mortality		Cesarean Hysterectomy		Maternal Mortality	
		No.	%	No.	%	No.	%	No.	%
1918-1931 (12)	34,807	1,212	3.5	20	1.64	37	3.04	1	2.70
1931-1941 (10)	27,321	1,457	5.3	9	0.62	76	5.23	1	1.31
1941-1947 (5½)	19,628	987	5.0	1	0.10	77	7.8	0	0.0
1931-1947 (15½)	46,949	2,444	5.2	10	0.41	153	6.3	1	0.65
1918-1947 (27½)	81,756	3,654	4.5	30	0.82	190	5.2	2	1.05

We are excluding hysterectomies in cases in which the uterus ruptured before delivery. There have almost always been hemorrhage and shock, excessive spill of infected amniotic fluid and meconium into the abdominal cavity; torn arteries have retracted; extensive tissue spaces have been opened, and there are frequent injuries to bladder and ureter and occasional injuries to the sigmoid. Our mortality in these patients is 23 per cent. Patients with separations of the old scar found at the time of the cesarean section without any escape of uterine content, are included.

5. De Normandie, R. L.: New England J. Med. 227:533, 1942.
6. Irving, F. C.: Am. J. Obst. & Gynec. 50:660, 1945.
7. Reis, R. A., and De Costa, E. J.: Cesarean Hysterectomy, J.A.M.A. 134:775 (June 28) 1947.

The data pertinent to cesarean section and hysterectomy on our service are listed in table 1. There were 168 operations since 1931, but only 153 were performed on patients who were thirty weeks or more pregnant. There was only 1 death. This constantly increasing use of cesarean hysterectomy may be due to the fact that the department is a combined one, the staff being experienced both in obstetrics and gynecology. The operation is performed with equal frequency in both private and clinic patients, with perhaps a slightly higher incidence in the former. If one believes, as we do, that elective cesarean hysterectomy has less mortality than elective cesarean section, and if one is properly appreciative of the uterine diseases that occur with increasing frequency after 35 years of age, it is obvious why we favor hysterectomy in this group of patients instead of tubal ligation.

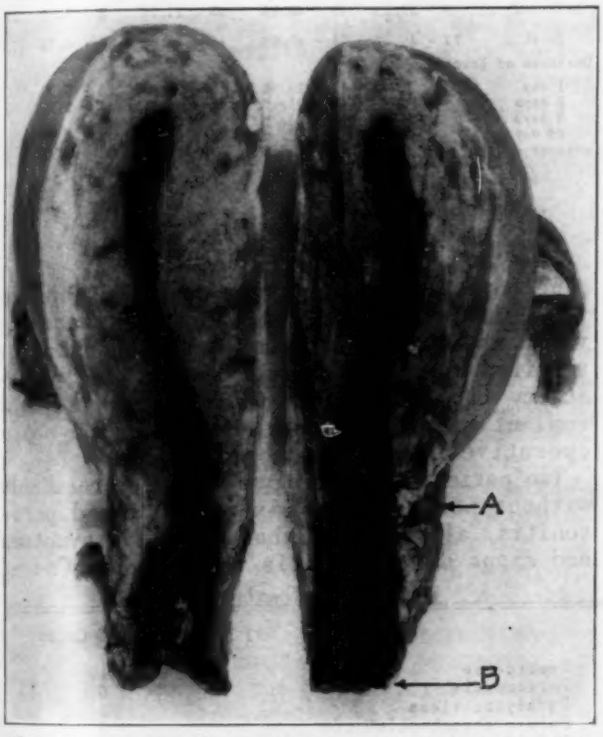
METHOD

We have never regarded cesarean hysterectomy as a formidable procedure. It is more difficult than removal of the nonpregnant uterus, because of the size of the organ and because of the dilatation in the lower segment and cervix. Each resident who completes his training on our service is first assistant at a number of these operations and always performs several during his service.

One of us (W.J.D.) pointed out in his paper on cesarean section that this operation should not be used as a last resort. There is a proper time for the performance of safe cesarean section. This, too, is true for cesarean hysterectomy. It should not be performed in the moribund patient with the hope of saving her life.

If the indication for the hysterectomy is potential or actual infection of the uterus, it is necessary that spill be kept at a minimum, but most important is the complete removal of the uterine tissue. The transverse incision must be below the level of the internal os if there is no cervical effacement at, or within 2 cm. of, the external os if there is a lower uterine segment. The need for complete or almost complete removal of the uterus is evident from the figure. After labor the lower segment is 10 to 15 cm. in length, and if not removed it will have almost as great potentialities for infection, because of the operation, as the entire uterus. If the hysterectomy is performed to prevent future pregnancy in a woman of 30 or less, it is desirable to leave enough uterus in order that the patient will have regular, but extremely brief, and scanty menstrual periods. The transverse incision here is made at, or slightly above, the lower segment of the uterus, or 7 to 10 cm. from the external os, or, if there is no cervical effacement, 2 cm. above the internal os. The average weight of the term uterus is 997 Gm., with a range of 828 to 1,118 Gm. The cuff is closed in layers, interrupted surgical gut sutures being used if there is infection, and completely peritonized with the

bladder flap. No drainage is used. If there is potential or actual uterine infection, the patient is given nothing by mouth and is given fluids parenterally until the clinical course warrants the oral administration. The water and salt balance must be adjusted to insure a urine output of at least 1,000 cc. per twenty-four hours. The patient with clinical evidence of infection should be given adequate amounts of blood, the appropriate vitamins and sulfonamide compound and/or appropriate antibiotics, although our results to date without the latter drugs have been excellent. The non-infected patient should have the usual post-cesarean routine.



Term uterus removed at autopsy twenty-four hours after delivery. It weighed 1,002 Gm. and was 24 cm. in length. The lower segment *A* to *B* measured 9 cm. *A* indicates beginning of contractile portion (corpus) of uterus, *B* the external os. In an infected or potentially infected uterus the transverse incision must be made at or within 2 cm. of *B*. If it is desirable for the patient to have menstrual periods the transverse incision must be made at or slightly above *A*.

INDICATIONS FOR CESAREAN HYSTERECTOMY

The indications for the hysterectomy are listed in table 2. Many of the indications for the cesarean section were repeat operations, but, if myomas were found in the uterus, our policy was to remove it instead of crushing and ligating the tubes. If the patient was 35 years or over and a multipara, we frequently prevented future pregnancies by hysterectomy. A Couvelaire uterus in a multipara, even if there was no bleeding, was always removed, but if it was in a primipara every attempt was made to save the uterus unless there was evidence of pronounced lack of muscle tone or hemorrhage. Elderly multiparas with placenta previa usually had the uterus removed instead of a tubal ligation. The high incidence of placenta accreta in the patients with previa is of interest. The uterus was removed in a number of cases after unsuccessful tubal ligation, primarily for the purpose of studying the tube which was still patent. By diseased organ we mean a uterus in which there are two or more cesarean scars. There were 5 patients

TABLE 2.—*Indications for Hysterectomy*

Indication	Number
Myoma	44 plus*
Infection	19
Potential infection	14
Couvelaire uterus	
Multipara	6
Hemorrhage	6
Placenta previa	
Multipara	6*
Accreta	2
Placenta accreta	2
Tubal ligation failed	6
Diseased organ	11
Thin scar	5
To sterilize, 35 plus years	14
To sterilize; toxemia; 35 plus years	4
Ventral hernia	2
Uterine hemorrhage	3
Carcinoma of cervix	4†
Miscellaneous	5
Total	153

* Total hysterectomy was done in 1 case.

† Total hysterectomy was done in 3 cases.

in whom, at the time of the cesarean section, the membranes projected through the scar after the vesical peritoneum was reflected or the scar tissue was paper thin. Two patients had an extensive ventral hernia and, since tubal ligation was advisable, it was felt that the postpartum course would be smoother with a hysterectomy. Three patients at the time of the cesarean section had more than the usual hemorrhage from the uterus, which did not respond properly to injections of solution of posterior pituitary, massage and packing. Four patients had carcinoma of the cervix, which had been treated with radium in 3 (total hysterectomy in these) and by subtotal hysterectomy in 1, who subsequently received radium. The indications in the miscellaneous group were acute appendicitis and rupture, stenosis of the vagina, a carcinoma of the breast (castration), a myoma with sarcomatous degeneration and a psychiatric case.

A unilateral salpingo-oophorectomy was performed in 31 cases and a bilateral salpingo-oophorectomy in 8 cases.

The age and parity of our patients are given in table 3. Over two thirds of the patients were 30 years of age or older, and over two thirds had two or more children. If a tube and an ovary are left on the same side and care is taken not to interfere with the venous return from the ovary and tube, there is no menopause within two or three years, as has been reported, unless it would have occurred normally. We know that ovarian function has lasted for over ten years in some of these patients, provided that the operation was performed in patients less than 30 years of age.

The following abstracts give the indications for the hysterectomy in the 5 patients who were less than 25 years old:

A.K., aged 24 years, was a gravida IV, para II. The diseased organ—that is, two previous scars in the uterus—was the indication for the hysterectomy.

C.S., aged 24 years, gravida II, para I, had a total hysterectomy because of a diagnosis of adenocarcinoma of the cervix, which subsequently was changed to pronounced hyperplasia of the cervical mucosa due to pregnancy.

J.L., aged 24 years, gravida II, had a hysterectomy because at the time of the operation a complete separation of the old cesarean scar was found.

I.B., aged 24 years, gravida II, had had a previous cesarean section. The uterus was removed because the patient had had ruptured membranes for twenty-four hours and an unsterile vaginal examination in the clinic.

M.N., aged 19 years, gravida III, had had two previous cesarean sections. The membranes had been positively ruptured for one week and the patient had been in labor for seven hours. No sulfonamide drug or penicillin was used. The postoperative course was normal.

TABLE 3.—*Age and Parity (30 Weeks and More)*

Age in Years	Parity I	II	III	IV	V	VI	VII	VIII+	Total
15 - 19	-	-	1	-	-	-	-	-	1
20 - 24	-	2	2	-	-	-	-	-	4
25 - 29	1	8	2	2	3	1	-	-	17
30 - 34	5	9	8	4	8	-	1	1	36
35 - 39	17	11	9	5	5	8	4	9	68
40 - 44	11	4	1	3	3	1	1	1	25
45 - 49	-	-	-	-	-	-	-	2	2
Total	34	34	23	14	19	10	6	13	153

MORBIDITY AND DURATION OF FEVER

The morbidity and duration of fever are given in table 4. The potentially infected patients are those in labor and/or with ruptured membranes of more than twenty-four hours' duration. The following are our criteria for an infected patient, and in cases of cephalopelvic dystocia we would deliver either by craniotomy or, preferably, by cesarean hysterectomy: (1) labor and/or ruptured membranes of forty-eight hours or more associated with: (*a*) temperature of 38 C. (100.4 F.) or more, (*b*) chills, (*c*) positive blood culture and (*d*) bacteria in the amniotic fluid in large numbers; (2) repeated vaginal examinations with hands or unsterile gloves; (3) foul-smelling amniotic fluid; (4) labor after attempts at delivery; (5) when a bag, bougie or pack has been in the uterus; (6) more than twelve rectal or six vaginal examinations.

It is difficult to believe that in a period of fifteen and one-half years there were only 12 potentially infected and 21 infected patients out of a total of 153 in whom we deemed hysterectomy advisable. Irrespective of how carefully records are kept, they do not express the real indications to the degree experienced by the surgeon at the time of the operation. One of us (W.J.D.) has noticed this frequently in studying the indications for terminating pregnancy in patients with toxemia. He could recall just how serious the patient's condition was, and yet the record does not support his memory of the case. The morbidity is 50 per cent in the clean and potentially infected patients and 71 per cent in the infected. There is not much difference between the clean and the potentially infected. The interesting thing is the average short duration of the fever.

TABLE 4.—*Morbidity and Duration of Fever*

Type of Cases	Normal	38 - 38.9 C.*	39 - 39.9 C.†	40 C.+ ‡	Total
Clean Cases	59 - 49.0%	47 - 39.0%	10 - 8.0%	4 - 3.0%	120
Potentially Infected	6 - 50.0%	4 - 33.0%	2 - 17.0%	0	12
Infected	6 - 29.0%	10 - 48.0%	3 - 14.0%	2 - 9.0%	21
Total	71 - 46.0%	61 - 40.0%	15 - 10.8%	6 - 4.0%	153
Duration of Fever					
1 day		15 - 19. %	7 - 9 %	3 - 3 %	
2 days		17 - 21. %	4 - 5 %	1 - 1 %	
3 days		19 - 23. %	2 - 2 %		
4+ days		10 - 12. %	2 - 2 %	2 - 2 %	
Average - days		4.3-53.5 %	3.2-13.7%	2.8-3.9%	

* 100.4 to 102 F.
† 102.2 to 103.8 F.
‡ 104 F. or higher.

MAJOR COMPLICATIONS

We have listed the major complications in table 5. One patient who had Streptococcus viridans septicemia from acute endocarditis required a second cesarean section. A hysterectomy was performed in order that a potential implant site could be eliminated. The postoperative course was normal.

Two patients had paralytic ileus, presumably without peritonitis. Six patients had peritonitis, although the characteristic symptoms and signs of peritonitis were absent. One of us (W.J.D.) has taught for many years that the classic symptoms and signs of peritonitis—namely, pain, persistent vomiting and abdominal rigidity—are rarely, if ever, present in puerperal peritonitis.[8] The characteristic findings are some abdominal distention, little, if any, vomiting, an indefinite mass arising from the pelvis and varying elevations of the temperature with a pulse rate which is more rapid than the fever would warrant. Frequently there are signs of bronchopneumonia, especially at the bases of the lungs, due to the splinting of the diaphragm. These findings were also noted by Rivett[9] and his co-workers in

TABLE 5.—*Complications*

	No. of Cases
Septicemia	1
Peritonitis	6
Paralytic ileus	2
Pelvic thrombophlebitis	1
Pelvic abscess	1
Pulmonary embolism	1
Infection of respiratory tract	3
Hemorrhage from cervical stump	2
Infection of abdominal wound	3
Infection of urinary tract	3*
Bladder injury	2
Ligation, both ureters	2†

* There was one vesicovaginal fistula.
† Subsequent unilateral nephrectomy was done in each case.

8. Schwarz, O. H., and Dieckmann, W. J.: Am. J. Obst. & Gynec. 4:467, 1927.
9. Rivett, L. C., Williams, L., Colebrook, M. B., and Fry, R. M.: Proc. Roy. Soc. Med. 26:45, 1933.

1933, who stated that there was no clinical syndrome which could be stated as being diagnostic of puerperal peritonitis. Rigidity was hardly ever present and constipation rarely. In a group of 30 fatal cases in which the diagnosis was confirmed by autopsy, they noted distention in 22, tenderness in 13, rigidity in 4, diarrhea in 4 and vomiting in only 5. These observations have been confirmed on our service by either laparotomy or autopsy.

One patient had pelvic thrombophlebitis and one a pelvic abscess which was drained some six weeks after operation. A number of patients had slight infections of the respiratory tract, and 3 had serious infections. Hemorrhage from the cervical stump occurred in 2 patients on the tenth day; this was treated by clamping and removing the clamp in forty-eight hours. Neither patient required a transfusion. Injury to the bladder occurred in 2 patients, in 1 of whom a vesicovaginal fistula developed which required subsequent repair.

A serious complication was the ligation of both ureters in 2 patients. A total hysterectomy was perfromed in a case of placenta previa to obtain the entire specimen. The other patient had a carcinoma of the cervix, and a rather extensive resection of the parametria and vagina was made. However, in both instances the patient was given 500 cc. of 30 per cent dextrose, and when no urine appeared in the bladder within thirty minutes we felt that the diagnosis was definite. It was confirmed by inability on the part of the urologist to pass catheters in either ureter. The usual treatment in such cases is a nephrostomy. The abdomen was reopened, and, with the urologist passing ureteral catheters from below and the surgeon locating the point of obstruction through the abdomen, the constricting sutures were located and cut. In 1 patient a ureterovaginal fistula developed, which required a subsequent nephrectomy, and in the other case one ureter was implanted in the bladder wall and the other ureter was implanted in the skin, the kidney being removed subsequently.

There were 10 stillbirths and 8 neonatal deaths, a total uncorrected fetal mortality of 11.8 per cent, which is twice that for cesarean section and four times that for all types of delivery. Abruptio placentae, placenta previa and prolonged labor are all characterized by a high fetal mortality and comprise one third of the series.

The 1 patient who died, M.S., was 32 years old, gravida X, para VI and who weighed 108 Kg. She had had two previous deliveries by us; she had diabetes and chronic rheumatic heart disease, and late in pregnancy toxemia developed. She was at term on Oct. 29, 1937, and was not cooperative. She was admitted on October 3, at thirty-seven weeks' gestation, because her membranes ruptured. On October 4 the attending obstetrician advised observation and no induction; shortly thereafter the patient began having contractions. There had been two sterile vaginal examinations, and, because of twenty-one hours of labor with strong tumultuous pain for six hours, ruptured membranes for over twenty-three hours and an extremely large abdomen, a cesarean hysterectomy was performed. The baby weighed 5,170 Gm., and the placenta weighed 885 Gm., thus accounting for the huge size of the abdomen. On the second postoperative day the patient complained of abdominal distention, but was taking fluids by mouth. On the third there was increasing distention and she vomited once. Wangensteen drainage was instituted on the third. On the fourth day the patient was given water and the tube was removed. The tube was inserted on the fifth and later removed. The same procedures occurred on the sixth day. The tube was reinserted on the seventh, removed on the eighth and again reinserted on the ninth. The patient died on the tenth postoperative day. There was a difference of opinion, and one obstetrician would order the patient to have fluids and food by mouth and another one would discontinue them. Most of the staff thought that the patient at first had localized peritonitis and that had she been given the routine treatment for peritonitis the outcome might have been different. The fact that she lived ten days would seem to substantiate this belief.

The essential findings at the autopsy were as follows: When the peritoneal cavity was opened, the markedly distended domelike abdominal wall suddenly collapsed as a rush of gas was released. The abdominal cavity contained 2,200 cc. of a foul-smelling, turbid tan pus, which was found in all parts of the peritoneal cavity from the diaphragm to the pelvis, partly concealed in pockets between the viscera and the abdominal walls. After removal of the fluid, the peritoneal surfaces, both visceral and parietal, showed focal injection and were covered with a fibrinous or fibrinopurulent exudate. The omentum adhered to the region of the cecum by fibrous adhesions. The omentum was greatly thickened and inflamed, apparently through the entire fat layer. The stomach was distended with gas. The large bowel was greatly distended by gas and a semifluid content. Behind the region in the cervical stump was a transverse row of surgical gut sutures, peritonizing the cervical stump. The exudate was no thicker here than on other parts of the peritoneum. There also was pus in the lesser peritoneal cavity. Other findings were: bilateral ovarian hemorrhagic infarction, thrombosis of the right ovarian vein, pronounced dilatation of the cervical canal, active rheumatic myocarditis and clinical diabetes mellitus.

One of us (W.J.D.) has had seriously sick patients after cesarean section and after cesarean hysterectomy. He had 1 patient die after hysterectomy. This patient was brought into the hospital in 1926 with a myoma blocking the inlet and a nonpulsating cord which had been hanging through the introitus for three days. The uterus was removed without being opened. The pulse and temperature remained normal until the day of death, which occurred on the seventh postoperative day. Generalized peritonitis was found at autopsy.

CONCLUSIONS

Cesarean hysterectomy has absolute as well as relative indications. It is not a panacea for poor obstetrics. The incidence necessary for proper training in the technic is too low in most clinics.

It requires about the same amount of time for the experienced operator to perform cesarean hysterectomy as for laparotrachelotomy.

The blood loss is not increased and is usually reduced.

Hysterectomy after cesarean section in infected or potentially infected patients insures the lowest mortality, provided that the entire body or corpus and most of the cervix is removed. Peritonitis routine is necessary for forty-eight to ninety-six hours or until the patient's condition warrants oral fluids. During this period adequate supportive treatment is necessary and sufficient parenteral fluid must be given to insure a urinary output of at least 1,000 cc.

Cesarean hysterectomy in the treatment of the infected patient—whether the infection is due to cephalopelvic disproportion, to obstruction from tumors, fetal malposition, unsterile examinations or a faulty mechanism of labor—should have a mortality of less than 2 per cent.

If it is an elective operation, the mortality should be less than 1 per cent.

ABSTRACT OF DISCUSSION

DR. ARTHUR B. HUNT, Rochester, Minn.: Five alternatives present themselves when the problem of actual or potential infection in the presence of prolonged dystocia is considered. They are (1) the avoidance of getting into such a situation—that is, prophylaxis, (2) cesarean hysterectomy, (3) extraperitoneal cesarean section, (4) low cervical cesarean section, with full use of sulfonamide compounds and antibiotic substances, and (5) craniotomy. Dr. Dieckmann, in his 1945 communication on cesarean section, emphasized the importance of early decision in the disposition of patients with dystocia in obtaining a low mortality rate, and we cannot too greatly appreciate the importance of early decision in practice and in the training of postgraduate students. The value of cesarean hysterectomy is well outlined in his present communication. I would agree with Dr. Dieckmann that in the presence of actual infection such a procedure is the one of choice. We feel that cesarean hysterectomy is preferable to multiple myomectomy in the presence of fibroids and is at times for intractable hemorrhage. We have placed a rather heavy strain on both the low cervical cesarean section and the concomitant use of sulfonamide compounds and antibiotic materials in these cases, but to date with good results. The frequent ill advised use of antibiotic substances and the too general ready dependence on them can well be deplored, but this has little connection with the early intensive and persistently skilful use of such preparations when they are urgently needed. At the Mayo Clinic, we have done 310 cesarean sections in about 9,500 deliveries from Jan. 1, 1935 to June 1, 1947; the incidence of cesarean section has been 3.3 per cent. Twelve patients had cesarean hysterectomy, making an incidence of 3.9 per cent among the cases of cesarean section. Not included in this group is 1 instance of posthumous cesarean section, done after death from a brain abscess. There was no maternal mortality in the 310 cases. Surprisingly, only 1 patient was subjected to Porro cesarean section because of actual or potential infection, and this patient was operated on less than two months ago. We have frequently violated Dr. Dieckmann's rule by applying low cervical cesarean section with the use of antibiotic substances in many cases. In an even larger number, by these means, we eventually delivered normal live infants through the pelvis and left patients in good condition for further reproduction, whereas if we had performed cesarean hysterectomy we would, of course, have deprived them of the uterus. However, we would agree that in the presence of definite infection, which makes the risk seem high, cesarean hysterectomy is the operation of choice, since it affords a good prognosis for the fetus and, as Dr. Dieckmann has so wisely observed elsewhere, it is better to have a live woman without her uterus than a dead woman with it. One of his tables reveals a mortality rate of less than 0.1 per cent, there being only 1 maternal death in more than 1,050 cases of cesarean section of all types in a five and a half year period. These results speak for themselves and probably represent a bedrock level in maternal mortality associated with cesarean section.

DR. JAMES F. NORTON, Jersey City, N. J.: Dr. Dieckmann, you are in error when you credit us with 6 deaths, 5 of them from infection. Four of our 6 deaths were from infection, 1 was from hemorrhage and 1 was from spinal anesthesia. We have not had a death due to infection following extraperitoneal cesarean section since 1940, and it goes back almost to the 120 or 130 cases in this series of 753. You stated, and I think justly so, that we are all interested in doing what is best for the patient to reduce fetal and maternal mortality, and do it with a degree of safety. We believe definitely that we have, with the method we use, a method at our disposal which is quite safe, which is well within the surgical competence of any trained man, and you admit that you have difficulty getting material to teach cesarean hysterectomy to your group. In your statistical report you mentioned 2 bladder injuries. About a year ago I submitted a paper setting forth a paravesical extraperitoneal cesarean section technic, Lascoe approach, and I stressed then the ease of performance of the operation, the almost foolproof postoperative course. In the light of our subsequent experience, I have reason to believe only that what I said then was probably a gross understatement. This is definitely a different operation from that supervesical operation described by Waters. It is a paravesical extraperitoneal cesarean section, as I said, a modified Lascoe, but rather definitely modified.

DR. WILLIAM F. MENGERT, Dallas, Texas: From a theoretical point of view, it seems, since the portal of entry of puerperal infection is through the endometrium, that if the uterus is removed before there is a spreading infection one can do a great deal toward prevention of death from peritonitis. It does not make much difference what sort of hysterectomy is done if one needs to do one. My associates and I happen to do total hysterectomy, in the few cases which we do. It is my intention to support Dr. Dieckmann in this, but I nevertheless must comment on the incidence of cesarean section in his paper, not only there but also at Jersey City. It is difficult for me to believe that 1 in 25 women in Chicago and in Jersey City is unable to give birth to a baby by the vagina. Since at Parkland Hospital we tend to permit vaginal delivery and do relatively few cesarean sections, I have no such figures to present as you have heard here today, but I do want to present a case report in order to illustrate the fact that extraperitoneal cesarean section is not without danger. A young primigravida was admitted in an obstructed labor with cephalopelvic disproportion. After about forty-eight hours, when she had a temperature of 99.5 F. (this fever did not subside with the ad-

ministration of fluids), we did a Waters extraperitoneal cesarean section. Both at operation and at autopsy it was demonstrated that the peritoneum had not been injured. It was intact at the time of operation. It was also intact at the time of autopsy. Nevertheless, this woman died with right-sided pyelonephritis and a localized peritonitis. She had all of the antibiotics and all of the sulfonamide drugs that we were able to give her. I should like to put on the record this fact, that it is possible for peritonitis to occur through an intact peritoneum.

DR. W. J. DIECKMANN, Chicago: Dr. Hunt spoke of the use of antibiotics and sulfonamide drugs in cases of prolonged labor. Since over two thirds of the cases of puerperal infection are due to bacteria which are not amenable to either substance, I do not believe that one is justified in taking chances with the patient's life. These drugs should be given and in cases with infection the uterus should be removed and bacteriologic and histologic studies made of the uterus to determine whether these drugs have been of any value. I know 2 cases in which craniotomy was performed on the living baby. In both instances the baby had been damaged either by prolonged labor or attempts at delivery. One must remember that after prolonged labor, even though the fetal heart sounds are within the normal range, it does not necessarily follow that the baby will be born alive or that it will, if born alive, be well. Dr. Norton questioned hysterectomy in patients less than 30. We felt that the hysterectomy was indicated in each case and, as long as an ovary and tube are left on the same side, the patient will not have her menopause for at least ten years and probably longer. We see no need to preserve the uterus when there is a chance that it may endanger the patient's life. Since the cervix in most of these cases has been normal during pregnancy we see no reason to remove the external os. We have used the extraperitoneal cesarean section in some elective and also in some borderline cases, but have not been able to deliver the baby within eight minutes, as suggested by Dr. Norton with his modifications. One operator had the case with a bilateral ligation of the ureters and also the case with vesical injury in which there was subsequently a vesicovaginal fistula. I am sorry if I have misquoted, giving 5 deaths from infection in place of 4. That was according to the information that I had. Dr. Mengert questioned the 4 per cent incidence of cesarean section. I know that we perform a few too many sections, and in all probability the group at Margaret Hague Maternity Hospital have the same experience. However, our mortality and morbidity are so low that we believe that we are justified in our practice. Our results are certainly better than they were fifteen years ago, when we were attempting to have a lower incidence. The number of maternal lacerations with extensive scar tissue in the vagina was definitely increased.

Dr. Garden and the Gardenia.—Those amateurs who were able successfully to apply the Linnaean principles of classification were encouraged by the great Swedish botanist to send to Upsala accounts of all flora and fauna believed to be "non-descript." Alexander Garden, a physician of Charleston, South Carolina, was numbered among the so-called "sons of Linnaeus." In 1760 Linnaeus named a certain genus of plants Gardenia in his honor, and in later years Garden sent his master so many specimens of various kinds that Linnaeus called him "the happy illustrator of Nature in his own region of Carolina."—Denny, Margaret, *The Scientific Monthly*, July 1948.

PATHOLOGIC NON-NEOPLASTIC INTRACRANIAL CALCIFICATION

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Rochester, Minn.

Ström[1] in 1919 conveniently divided intracranial calcification as revealed by roentgenograms into two groups: the physiologic and the pathologic. The former group includes structures such as the pineal gland, choroid plexus, falx cerebri and pacchionian bodies which normally may exhibit varying amounts of calcium. The pathologic group includes all tumors and certain non-neoplastic lesions. Many of the latter produce clinical signs which simulate those of a cerebral neoplasm, and in the differential diagnosis roentgenographic evidence can play a most important role. Not infrequently the roentgenologist not only can exclude the presence of a tumor but by virtue of the shape, extent and distribution of shadows of calcification can predict the nature of the disease and often the cause. The table shows a practical classification of these lesions for the roentgenologist. The pathologist may disagree with such a grouping because, microscopically, the method of deposition of calcium is similar in many of these lesions; nevertheless, the gross arrangement of the deposits of calcium as revealed by roentgenograms is typical for many.

VASCULAR LESIONS

The vascular intracranial lesions (non-neoplastic) that may be portrayed by calcification in the roentgenogram are arteriosclerosis, aneurysms, angiomatous malformations and hematomas.

Arteriosclerosis.—Arteriosclerosis involving especially the internal carotid artery is evident in about 1.8 per cent of all roentgenograms of the skull. The incidence varies naturally with age; it ranges from 4.2 per cent in the sixth decade to 10 per cent in the eighth decade. The degree of calcification varies from the simple calcified plaque seen edgewise or *en face* just lateral to the sella turcica to complete tubular calcification of the cavernous and intracranial portions of one or both internal carotid arteries. The simple arteriosclerotic artery does not usually rise above the interclinoid level in the cavernous sinus, and the constancy of this position is important in distinguishing arteriosclerotic calcification from calcified aneurysms and calcified suprasellar or parasellar tumors. Calcification of the interclinoid reflection of the dura may imitate focal plaque like calcification of the internal carotid artery. Calcification of the intracranial

From the Section on Roentgenology, Mayo Clinic.
Read before the Section on Radiology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J. June 11, 1947.

1. Strom S.: Ueber die Röntgendiagnostik intrakranieller Verkalkungen, Fortschr. a. d. Geb. d. Röntgenstrahlen 27:577-601, 1921.

portion of the internal carotid artery is less common than that of the cavernous portion. When present, it is usually associated with extensive calcification of the artery. Rarely, calcification extending to the contiguous portions of the middle cerebral, anterior

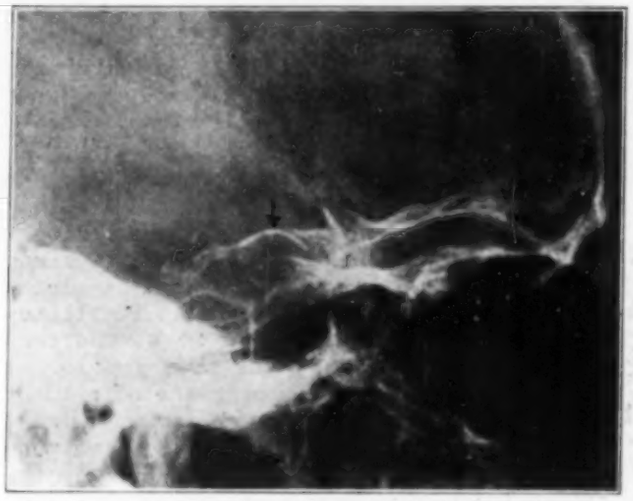

Fig. 1.--Intracranial aneurysm exhibiting characteristic roentgenographic signs: (1) curvilinear calcification in wall of aneurysm; (2) unilateral erosion of sella turcica; (3) localized erosion of anterior clinoid process contiguous to aneurysm.

cerebral or ophthalmic arteries may be observed. In certain cases, the postero-anterior projection and the Granger or optic canal position are useful in checking the relation of the calcified vessel to adjoining structures.

Knapp[2] has suggested that, in cases in which the patients are elderly, pressure from a sclerotic and calcified internal carotid artery contiguous to the optic nerve may be a factor in producing a condition which will cause symptoms of glaucoma without tension, together with altitudinal visual defects, optic atrophy and cupping. Because of the rarity of this syndrome it would seem to be more easily explained by actual disease of the ophthalmic artery rather than by pressure from the internal carotid artery.

Aneurysm.—Although aneurysm of the internal carotid artery and related vessels has been of interest to the neurologist for a long time, its clinical importance has increased since the introduction of arteriography, which permits an accurate portrayal and precise localization of the lesion. In many cases localized roentgenographic changes, especially the presence of calcification, will permit the diagnosis of an aneurysm without the use of arteriography.

Calcification in an aneurysm of the internal carotid artery may vary from curvilinear plaques which outline a fusiform or saccular enlargement (fig. 1) to complete shell-like calcification which outlines the walls of a laminated clot or sac. The diameter of the shell-like calcification may vary from a few millimeters to several centimeters; the larger the lesion, the more irregularly rounded its contours become. Other important roentgenographic changes consist of unilateral erosion of the sella turcica, especially the adjoining anterior clinoid process, unilateral dilatation of the optic foramen and contiguous portion of the superior orbital fissure, and erosion of the margins of the carotid canal. Generalized enlargement of the sella turcica resulting from an aneurysm extending into the pituitary fossa may imitate the roentgenographic changes of pituitary tumor.

Calcification within the aneurysm was observed roentgenographically in 7 of 8 cases (87.5 per cent) reported by McKinney, Acree and Soltz.[3] These authors were the first to correlate the roentgenographic findings with the clinical phenomena of unruptured aneurysm of the intracranial portion of the internal carotid artery. The presence of unilateral exophthalmos and unilateral partial or complete involvement of the oculomotor and trigeminal nerves, and usually involvement of the optic, trochlear and abducent nerves, plus roentgenographic changes, constitutes conclusive evidence of such an aneurysm. Curvilinear deposits of calcium and unilateral bony changes about the sella turcica are the significant signs that distinguish aneurysms from pituitary and suprasellar lesions. Parasellar cholesteatomas or epidermoids which contain calcium more closely imitate the roentgenographic changes of aneurysm than does any other lesion that I have observed. Chromophobe tumors of the pituitary body which often are cystic and extrude laterally from the sella turcica as well as above may closely imitate the bony changes of aneurysm. Fortunately, those tumors rarely undergo calcification, but, when they do, it has been my experience that the calcification has been plaquelike and has simulated that which occurs in an aneurysm. In some instances in which the clinical data are not conclusive, the final diagnosis must rest on arteriography.

Angiomatous Malformation.—Angiomatous malformation may be classified as capillary (telangiectatic), venous and arteriovenous. These lesions are considered by most pathologists as developmental anomalies which may undergo subsequent change in size and character. They are primarily surface lesions of the cerebral hemisphere. They may be recognized as a simple enlargement of one or more vessels, or they may be more complicated and extend from the cerebral surface like an inverted cone with the apex contiguous to the lateral ventricle.

Roentgenologic interest in vascular lesions was stimulated by Weber[4] in 1928 when he re-

2. Knapp, A.: Association of Sclerosis of the Cerebral Basal Vessels with Optic Atrophy and Cupping: Report of Ten Cases, Arch. Ophth. 8:637-648 (Nov.) 1932.

3. McKinney, J. M.; Acree, T. and Soltz, S. E.: The Syndrome of the Unruptured Aneurysm of the Intracranial Portion of the Internal Carotid Artery, Bull. Neurol. Inst. New York 5:247-277 (Aug.) 1936.

4. Weber, F. P.: A Note on the Association of External Haemangiomatous Naevus of the Skin with Cerebral (Meningeal) Haemangioma, Especially Cases of Facial Vascular Naevus with Contralateral Hemiplegia, Proc. Roy. Soc. Med. 22:431-440 (Dec. 13) 1928.

ported a case of cerebral hemangioma associated with facial nevus and contralateral spastic hemiplegia. The roentgenogram of the skull revealed involvement of almost the entire left hemisphere by what was interpreted as calcareous deposits in the vessels of the meningeal angioma.

Weber[4] observed similar calcification in 8 of 21 other cases reviewed by him and concluded that the roentgenographic appearance was characteristic (fig. 2). Krabbe[5] in 1934 reported in detail the postmortem findings in a case similar to the cases reported by Weber.[4] He established proof that the calcification occurs in the second and third layers of the atrophic cortex and not in the pia mater, which may show abundant vascularity but no true angioma. The distribution of the masses of calcium in the cortical convolutions easily explains the tortuous nature of the roentgenographic shadows. Krabbe's observation has been confirmed by other observers, and the pathologic basis for such a roentgenographic finding seems firmly established. In addition, the calvarium overlying the affected hemisphere is thickened and asymmetric, as would be expected in the presence of cortical atrophy. Curiously enough, the vascular markings of the diploe and internal tables are not increased over the involved area. Similar findings have been observed in patients without associated nevus and there would appear to be many variants of this condition.

In cases of cerebral angioma, microscopic examination has disclosed calcification in the walls of the related blood vessels; however, the dominant roentgenographic finding in such cases is the calcification of the atrophic cerebral cortex.

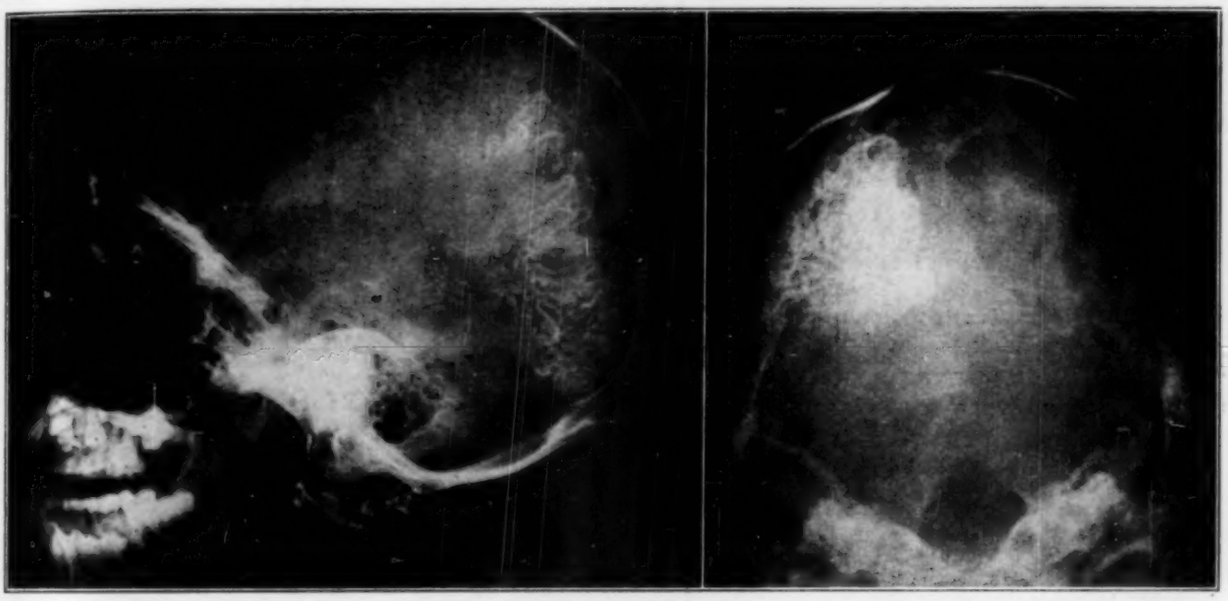

Fig. 2.— Calcification in second and third layers of cortex of atrophic right cerebral hemisphere associated with facial agioma (Sturge-Weber syndrome); asymmetry of skull and thickening of calvarium on right side resulting from atrophy of right cerebral hemisphere.

Arteriovenous aneurysms, which usually arise from one of the major cerebral arteries or its branches, do not reveal roentgenographic evidence of associated calcification nearly as frequently as do angiomas. The significant roentgenographic changes consist of markedly increased vascularity of the overlying calvarium together with hypertrophic changes or thickening of the overlying bone.

Hematomas.—Although subdural hematomas, encountered rather commonly by neurosurgeons, do not present roentgenographic evidence of calcification as frequently as would be expected, when calcification is present, it may assume the form of faint strands or plaques of calcium about the lesion or of sheetlike masses of calcium about the lesion and in the contiguous meninges (fig. 3). Formation of bone is not uncommon in the latter type of lesion and has been described by Schuller[6] as ossifying hematoma of the dura and has been considered by him to be the same condition as hemorrhagic pachymeningitis. It is possible that unilateral calcification of the meninges and falx cerebri of a young patient who has had a previous injury of the head but who does not have any deformity to suggest a localized hematoma may be a related condition.

Calcification within an intracerebral hematoma is usually revealed as a dense irregularly outlined mass which is from 1 to 5 cm. in diameter. Shadows of this type have been found so frequently in cases of old hemorrhage that their presence is of diagnostic significance. In my experience, they are more similar to the shadows of calcified intracranial tuberculoma than they are to the shadows of any other lesion.

5. Krabbe, K. H.: Facial and Meningeal Angiomatosis Associated with Calcifications of the Brain Cortex: A Clinical and Anatomopathologic Contribution, Arch. Neurol. & Psychiat. 32:737-755 (Oct.) 1934.

6. Schuller, A.: Haematoma durae matris ossificans, Fortschr. a. d. Geb. d. Rontgenstrahlen 51:119-124, 1935.

INFLAMMATORY LESIONS

Various authors have suggested that atypical and extensive calcification of the meninges may be the result of previous inflammatory disease of the meninges. However, in my experience, calcification and even ossification of the falx cerebri and meninges is so frequently observed in the absence of any history of inflammatory intracranial disease that it is doubtful if any significant relationship exists. Leary[7] and other authors have expressed the opinion that chronic hemorrhagic internal pachymeningitis, which has been of interest to pathologists for a long time, is of traumatic origin. Leary stated the belief that any inflammatory reaction that may be associated with such lesions is incidental or accidental.

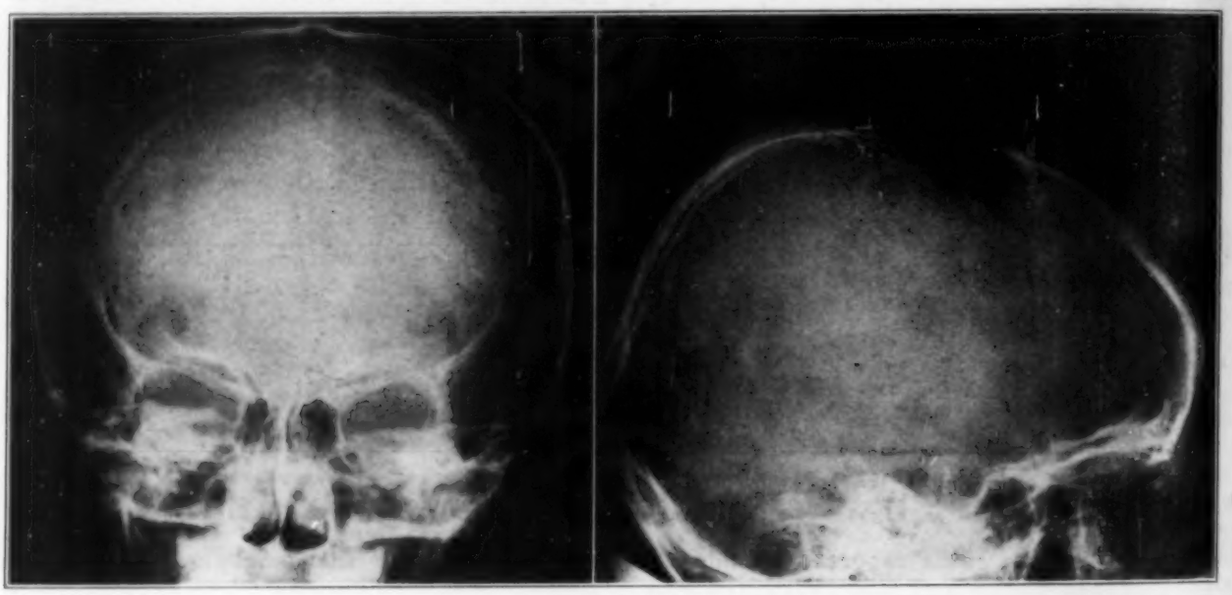

Fig. 3.—Subdural hematoma; plaquelike calcification in walls of hematoma and contiguous meninges.

Köhler[8] has stated that calcification in the reflection of the tentorium commonly known as the petroclinoid ligament is the result of chronic disease of the middle ear. In my experience there has been no relationship whatever between the two conditions. In the absence of associated encephalitis, intracranial calcification resulting from meningitis per se is indeed rare.

Calcification resulting from previous encephalitis may be observed in roentgenograms as multiple small dense areas distributed throughout the cerebrum and frequently in the basal ganglions (fig. 4). I have observed 2 instances in which miliary nodules of calcification occurred throughout the brain after epidemic polioencephalitis. In both of these cases the patients were children. Associated roentgenographic evidence of cerebral damage and degeneration is usually present as well.

Calcification of intracranial tuberculomas occurs in 1.3 per cent of cases according to Scott and Graves.[9] Evans and Courville,[10] in a more recent study, reported that such calcification occurs in 6.6 per cent of cases. Multiple lesions are much more frequent than solitary lesions and appear about as often in the cerebrum as in the cerebellum. Fifty per cent are observed in children in the first decade of life. Roentgenographically, the calcified nodules are revealed as discrete irregularly outlined dense masses of calcium, varying from 0.5 cm. to several centimeters in diameter (fig. 5). Pathologically, the calcification consists of myriads of coalescing calcospherities arranged in the form of a shell, which shrinks and fragments as the central portion of the lesion undergoes resorption. These changes account for the irregular roentgenographic contour. Associated formation of bone within the lesion is not uncommon. Evans and Courville have also described microscopic evidence of calcification in the walls of vessels in the central portion and at the margins of tuberculomas. Such calcification does not appear to play an important role in the roentgenographic appearance of the nodules.

Roentgenographic evidence of calcification within an old abscess of the brain has been mentioned by numerous observers. I have never encountered such calcification, and it would appear to be unusually rare.

PARASITIC DISEASE

The existence of toxoplasmic encephalomyelitis resulting from a protozoan parasite has been firmly established by the work of Wolf

7. Leary, T.: Subdural Hemorrhages, J. A. M. A. 103: 897-903 (Sept. 22) 1934.

8. Köhler, A.: Roentgenology: The Borderlands of the Normal and Early Pathological in the Skiagram, ed. 2, translated by Arthur Turnbull, William Wood & Company, 1935.

9. Scott, E., and Graves, G. O.: Tuberculoma of the Brain with a Report of Four Cases, Am. Rev. Tuberc. 27: 171-192 (Feb.) 1933.

10. Evans, H. S., and Courville, C. B.: Calcification and Ossification in Tuberculoma of the Brain: Review of the Literature and Report of Three Cases, Arch. Surg. 36:637-659 (April) 1938.

and Cowen[11] and their associates. The studies of Sabin[12] and of Callahan and his associates[13] suggest that this type of infection is more widespread than is generally realized. The roentgenographic changes described originally by Dyke and his co-workers[14] consist of multiple dense irregular nodules of calcification, often large in size, distributed throughout the cerebral cortex and basal ganglions. Not infrequently, curvilinear streaks of calcification may be observed in the basal ganglions (fig. 6). According to Sabin, 80 per cent of infants with the disease have hydrocephalus at birth or shortly thereafter, apparently the result of periventricular infiltration and ependymal necrosis.

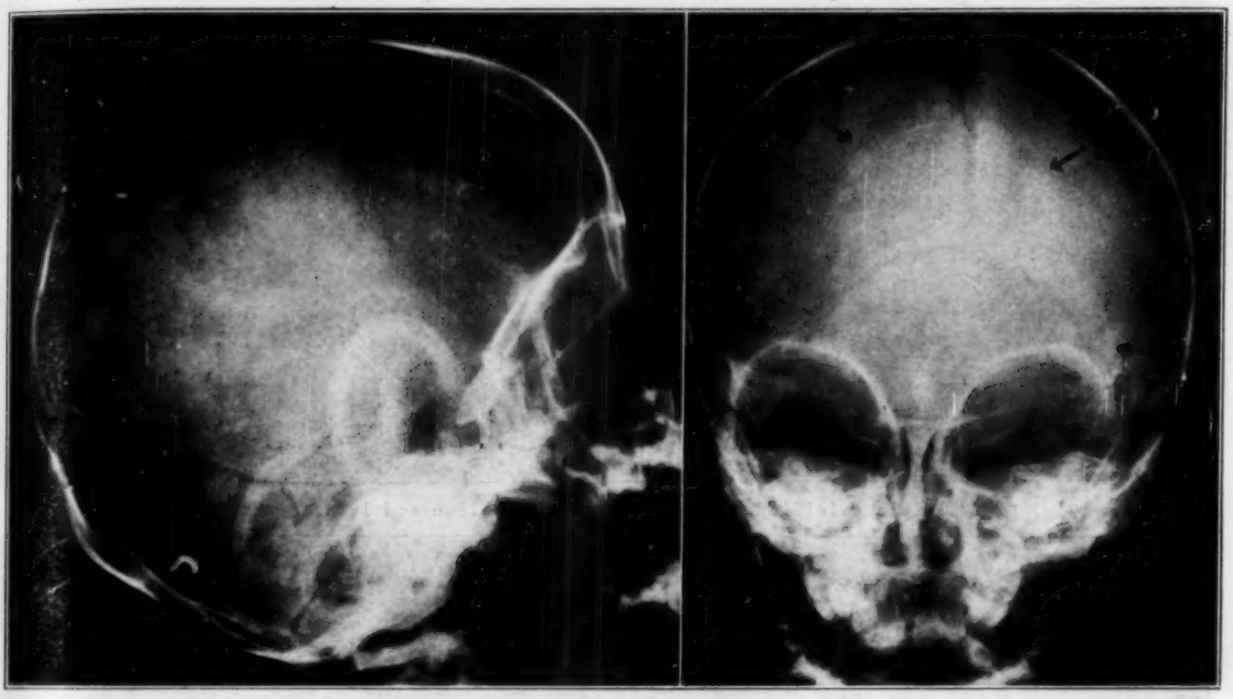

Fig. 4.—Fine diffuse granular calcification of brain subsequent to encephalitis of infancy. Toxoplasma reaction was negative.

Cysticercosis is not uncommon in foreign countries. With present means of transportation and more frequent intercontinental migration, infected persons will probably be observed with increasing frequency in this country. Roentgenographically, the lesion is revealed by the presence of multiple calcified encysted larvae in the muscles and the brain. The deposits of calcium in the muscles are fusiform in shape and vary from one to several millimeters in width and length. Within the brain, they are more globular or rounded instead of fusiform. In the majority of cases, the roentgenographic appearance is due to the deposition of calcium first within the fluid contents of the cyst and later in the degenerating remains of the parasite. Ultimately some calcium is deposited in the wall of the cyst. The scolex frequently is visible as an area of transparency unless it also has undergone calcification. In 32 of 284 cases reported by Dixon and Hargreaves,[15] roentgenologic examination revealed calcified cysts of the brain. In 2 cases, roentgenologic examination revealed the presence of calcified cerebral cysts when none could be demonstrated elsewhere in the body. The incubation period may vary from five months to twenty years, and according to MacArthur[16] the most dangerous period is from the sixth to the eighty year. Roentgenologic evidence of calcification of the cyst is rarely observed until five years after the time of infestation.

In trichinosis the calcified encysted trichinellae disseminated throughout the muscles and brain may be revealed in roentgenograms as small ovoid shadows of calcification about 1 to 2 mm. in size. Because of their small size they are not likely to be confounded with the larger shadows of cysticerci.

DEGENERATIVE LESIONS

In the presence of degenerative or atrophic lesions of the brain of congenital or developmental origin, deposits of calcium appear to

11. Wolf, A., and Cowen, D.: Granulomatous Encephalomyelitis due to an Encephalitozoon (Encephalitozoic Encephalomyelitis), Bull. Neurol. Inst. New York 6:306-371 (Aug.) 1937.

12. Sabin, A. B.: Toxoplasmic Encephalitis in Children, J. A. M. A. 116:801-807 (March 1) 1941.

13. Callahan, W. P., Jr.; Russell, W. O., and Smith, M. G.: Human Toxoplasmosis, Medicine 25:343 (Dec.) 1946.

14. Dyke, C. O.; Wolf, A.; Cowen, D.; Paige, B. H., and Caffey, J.: Toxoplasmic Encephalomyelitis: VIII. Significance of Roentgenographic Findings in the Diagnosis of Infantile or Congenital Toxoplasmosis, Am. J. Roentgenol. 47:830-844 (June) 1942.

15. Dixon, H. B. F., and Hargreaves, W. H.: Cysticercosis (Taenia Solium): A Further Ten Years' Clinical Study, covering two hundred and eighty-four cases, Quart. J. Med. 13:107-121 (Oct.) 1944.

16. MacArthur, W. P.: Cysticercosis as Seen in the British Army, with Special Reference to the Production of Epilepsy, Tr. Roy. Soc. Trop. Med. & Hyg. 27:343-357 (Dec. 14) 1933

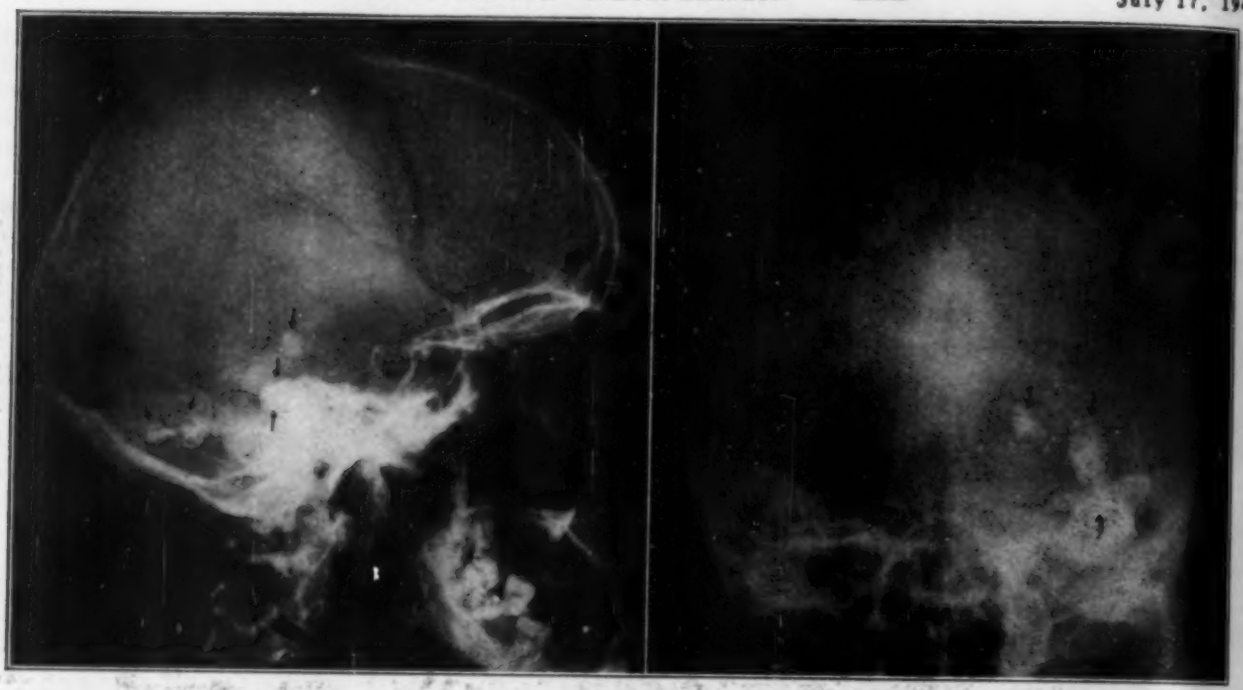

Fig. 5.—Multiple calcified tuberculomas of cerebellum and left temporal lobe.

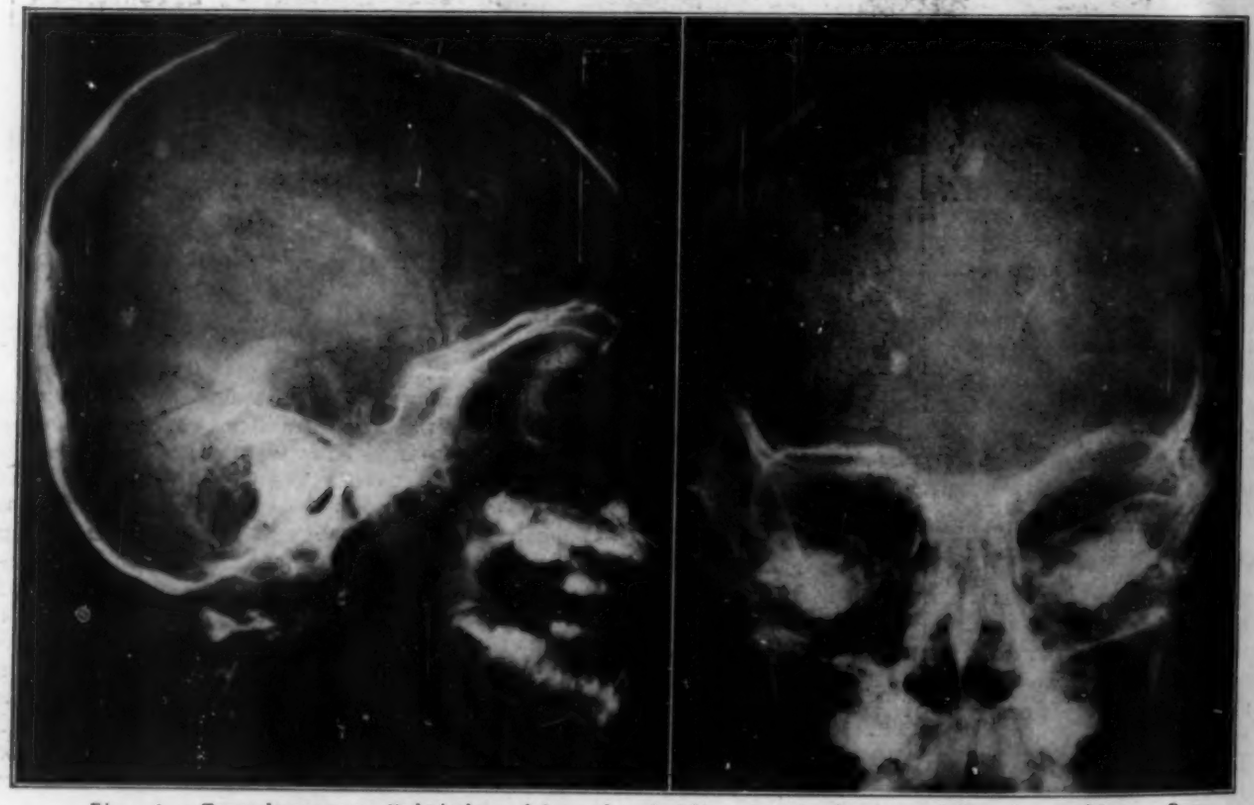

Fig. 6.—Toxoplasmosis. Multiple nodules of calcification in brain and basal ganglions. Curvilinear masses of calcium in the basal ganglions are often observed in this condition.

be laid down by the coalescence of perivascular colloid deposits in much the same manner as described by Krabbe in the presence of angioma. Roentgenographically the calcification is portrayed by a collection of irregular, convoluted shadows of increased density, corresponding to the shape of the atrophic convoluted cortex (fig. 7). Because these lesions are found in infants or small children, the overlying calvarium will reveal evidence of thickening and asymmetry owing to the atrophy of the underlying brain. If there should be an associated porencephalic cyst or collection of fluid, the overlying calvarium may be thinned and expanded.

TUBEROUS SCLEROSIS

Multiple small irregular nodules of calcium within the cortex are frequently observed in the presence of tuberous sclerosis. In my own

experience, multiple small areas of calcification may also be observed symmetrically distributed in the basal ganglions. Dickerson[17] has called attention to the presence of patchy

Fig. 7.—Extensive calcification of cerebral hemispheres, more pronounced on the right side, in a case of mental retardation since birth. There was no evidence of an angioma of the face or scalp. The character and distribution of the deposits of calcium are similar to those observed in the Sturge-Weber syndrome (fig. 2).

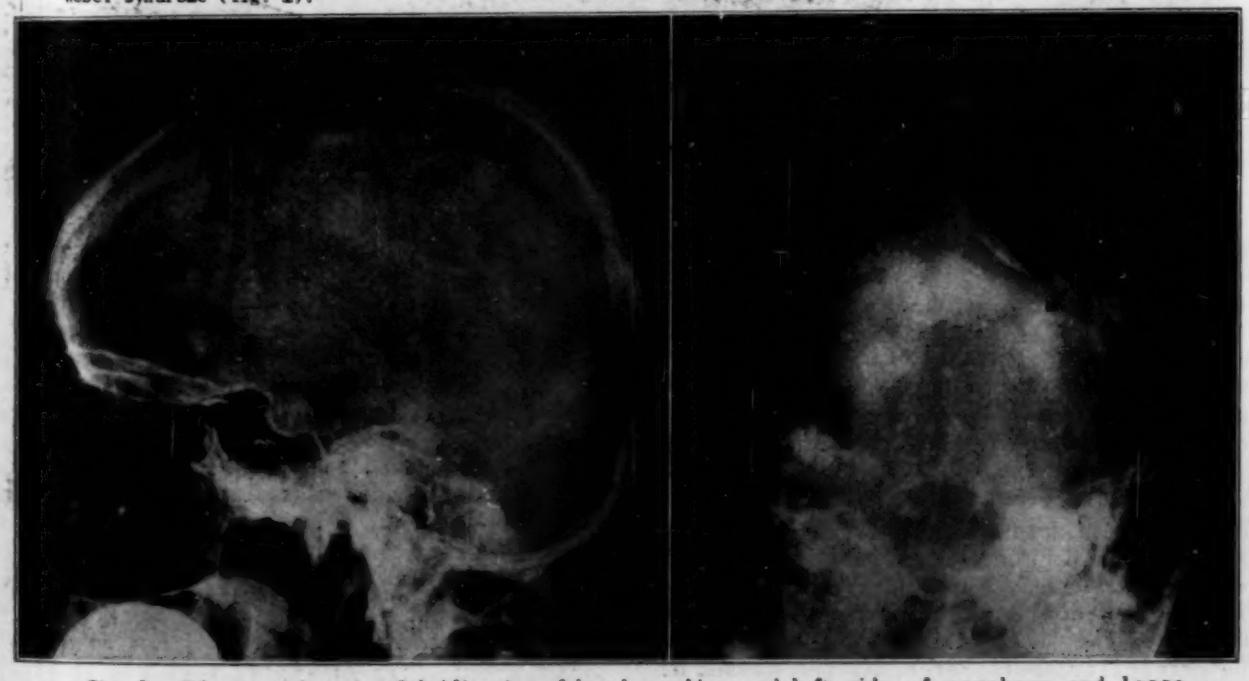

Fig. 8.—Tuberous sclerosis. Calcification of basal ganglions and left side of cerebrum and large mass of calcium in right side of cerebellum. Multiple patches of sclerosis in the calvarium.

zones of hyperostosis in the diploe and internal table in this disease and has emphasized their relation to underlying tuberous nodules in the brain. The combination of such changes in the calvarium and intracranial areas of calcification would seem to be typical of this condition (fig. 8).

17. Dickerson, W. W.: Characteristic Roentgenographic Changes Associated with Tuberous Sclerosis, Arch. Neurol. & Psychiat. 53: 199-204 (March) 1945.

PARATHYROID INSUFFICIENCY

To date at the Mayo Clinic, I have observed 12 cases of symmetric calcification of the cerebral basal ganglions in which there was definite clinical evidence of parathyroid insufficiency and tetany. In 1 of these cases the calcification followed a thyroidectomy at the age of 19 years and in the other 11 cases the disease was of the spontaneous type. Detailed clinical and roentgenologic data con-

cerning these cases have been published by my colleagues and myself.[18]

The pathologic basis for the roentgenologic changes is one of colloid deposition in and around the finer cerebral blood vessels with subsequent calcification of the deposits, which coalesce and form vascular sheaths and concretions. This is essentially the same microscopic change as is observed in the brain in association with other conditions and is probably a manifestation of degeneration of varying degree.

cortex may be observed at any stage of the disease. The latter may be so marked as to simulate a vascular lesion or calcified glioma. The fact that the shadows are bilateral and symmetric is usually sufficient to exclude the possibility of tumor of the brain. Follow-up roentgenograms in cases of parathyroid insufficiency have revealed no change in the character and extent of the calcium shadows in spite of the definite clinical response to adequate calcium therapy.

Calcium deposits in the choroid plexus of

Fig. 9.—Spontaneous parathyroid insufficiency: Symmetric calcification of basal ganglions which is commonly observed in this condition.

Symmetric calcification of the cerebral basal ganglions produces a characteristic roentgenographic appearance, and considerable variation in the degree and extent of the calcification may occur, depending on the stage of the disease at the time of the roentgenologic examination. The first roentgenographic evidence of calcification is small irregular discrete symmetrically distributed shadows of increased density in the region of the various basal ganglions, especially in the putamen and caudate nucleus (fig. 9). When the calcification is more pronounced, the irregular shadows have a wavy linear appearance. This is especially obvious in the dentate nucleus of the cerebellum and in the folds of the cerebellar hemispheres. As the masses of calcium coalesce, the shadows become larger, denser and more obvious. Coincident cerebellar calcification as well as evidence of calcification in the deeper layers of the cerebral

the lateral ventricles may be confounded with calcification of the basal ganglions, especially in roentgenograms made in the posteroanterior projection. In cases in which diagnosis is in doubt, pneumoencephalography may be used to establish the relation of the shadows to the lateral ventricles. As mentioned previously, calcification of the basal ganglions may also occur after encephalitis and toxoplasmosis and in association with tuberour sclerosis and mental deficiency.

SUMMARY AND CONCLUSIONS

The roentgenologist should play a significant role in the identification of various conditions that exhibit intracranial calcification as part of their underlying pathologic changes. In spite of the fact that a similar microscopic distribution of calcium may be found in lesions of different cause, the gross configuration and distribution of the calcium masses as revealed in roentgenograms are frequently typical of various lesions.

ABSTRACT OF DISCUSSION

DR. EUGENE P. PENDERGRASS, Philadelphia: Dr. Camp has contributed a great deal to our knowledge on intracranial calcification. The pineal gland is calcified in many instances. I have seen it at birth. If it is at the normal position it is rarely mistaken for anything else.

18. Eaton, L. M.; Camp, J. D., and Love, J. G.: Symmetric Cerebral Calcification, Particularly of the Basal Ganglia, Demonstrable Roentgenographically; Calcification of the Finer Cerebral Blood Vessels, Arch. Neurol. & Psychiat. 41:921-942 (May) 1939. Eaton, L. M., and Haines, S. F.: Parathyroid Insufficiency with Symmetrical Cerebral Calcification: Report of Three Cases, in One of Which the Patient Was Treated with Dihydrotachysterol, J. A. M. A. 113:749-752 (Aug. 26) 1939. Camp, J. D.: Symmetrical Calcification of the Cerebral Basal Ganglia: Its Roentgenologic Significance in the Diagnosis of Parathyroid Insufficiency. Radiology. 49:568-577 (Nov.) 1947.

I have on one occasion misinterpreted a small shadow of calcification that was thought to be a pineal body displaced downward. At operation the calcific lesion was a rice body in a cyst of the third ventricle. Choroid calcification likewise may occur early. My associates and I have seen it as early as 4 years. Displacement may be due to contracting (atrophic) lesions and mass lesions. Calcification of the choroid may occur bilaterally or unilaterally. You will remember Dr. Camp's descriptions of symmetric calcification. One has difficulty in recognizing the cause unless one is given a clue to the diagnosis. Calcification of the falx may occur in the midline, or it may develop from either side of the falx. We have seen calcification of the internal carotid in persons aged 4 years. We have seen it in patients with hypertension. We know that it occurs in vitamin poisoning. There are so many pathologic calcifications that I hesitate to enter into that subject. I should like to call attention to calcification in porencephaly. That is another of these traumatic lesions. The intracranial calcifications that Dr. Camp showed you are unusual. He has had a number of them and they have been proved, so that there is no question about the diagnosis. They might have been thought to be tuberculomas and gliomas.

I should like to emphasize the importance of good roentgenographic technic. The slides shown by Dr. Camp illustrate beautifully what I would like to say. One should use fine focus tubes, good grids and good screens in examining the head. If a broad focus tube and poor technic are employed, calcification of lesions such as have been demonstrated here today will be missed.

DR. JOHN D. CAMP, Rochester, Minn: I have nothing to add except that I am sorry that Dr. Pendergrass did not have an opportunity to show you the slides that he showed to me last night. They portrayed excellent examples of many of the conditions which I have just shown you.

FULMINATING DERMATITIS BULLOSA MEDICAMENTOSA DUE TO "MESANTOIN"

DAVE B. RUSKIN, M.D.
Caro, Mich.

Methylphenylethyl hydantoin ("mesantoin"), one of the most recent clinically tested anticonvulsant drugs, has been credited with considerable effectiveness in the reduction and control of grand mal seizures. It appears to be somewhat less effective in the control of psychomotor attacks and seldom effective in petit mal. Most writers have attributed one or more side effects to the use of this drug. One of these discussed was the appearance in some patients of a cutaneous rash, a reaction which is also elicited with phenobarbital, diphenylhydantoin sodium ("dilantin") and trimethadione ("tridione"), the three most commonly used anticonvulsants. Eruptions due to drugs are usually pinkish or reddish, macular and of symmetric distribution, with more or less itching and burning, and may simulate any condition or disorder.[1] Because this reaction is encountered with the use of phenobarbital, diphenylhydantoin sodium and trimethadione, it is interesting to study the relationship of their chemical formulas to one another and to methylphenylethyl hydantoin. It will be noted (fig. 1), that the phenylethyl radical of phenobarbital plus the hydantoin radical of diphenylhydantoin sodium together yield the formula of a highly toxic drug, phenylethyl hydantoin ("nirvanol"), a drug used in the treatment of chorea.[2] This drug

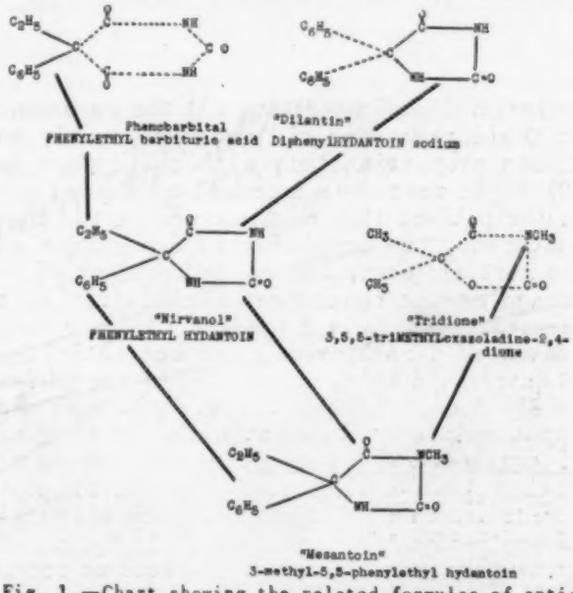

Fig. 1.—Chart showing the related formulas of anticonvulsants.

causes a macular rash, fever, eosinophilia, stupor and granulocytopenia. Further studies (fig. 1) also indicate that when the nitrogen carries a methyl group (CH_3) as a substituent, as in trimethadione, the resultant formula is that for methylphenylethyl hydantoin. Since both phenylethyl hydantoin nirvanol and trimethadione (tridione) produce reactions of the skin trimethadione only occasionally, it is not surprising that methylphenylethyl hydantoin is also observed to cause cutaneous reactions.

Loscalzo[3] reported a rash in 4.5 per cent of his group of patients receiving 5-phenyl-5-ethyl 3-methylhydantoin in combination with phenobarbital ("hydantal"). In all cases the reaction developed within two weeks. He reported a communication from Kozol[4] in which it was reported that virtually no rashes resulted when treatment with methylphenylethyl hydantoin was begun in small doses and the dose increased gradually. In Loscalzo's 3 patients, the rash completely disappeared in approximately ten days when treatment with the drug was discontinued. He reported having noted no effect on the blood.

From the Caro State Hospital for Epileptics, Caro, Mich., Dr. R. L. Dixon, Medical Superintendent.

1. Sutton, R. L., and Sutton, R. L., Jr.: Diseases of the Skin, ed. 9, St. Louis, C. V. Mosby Company, 1935.

2. Beckman, H.: Treatment in General Practice, ed. 3, Philadelphia, W. B. Saunders Company, 1938.

3. Loscalzo, A. E.: Treatment of Epileptic Patients with a Combination of 3-Methyl-5, 5-Phenylethylhydantoin and Phenobarbital (A Preliminary Report), Nerv. & Ment. Dis. 101:537 (June) 1945.

4. Kozol, cited by Loscalzo, A. E.: The Control of Epilepsy: An Interim Report on 3-Methyl-5, 5-Phenylethylhydantoin and Phenobarbital Therapy, J.A.M.A. 145:496 (Oct. 25) 1947.

Kozol[5] reported a rash in 10 per cent of the patients in his group taking methylphenythyl hydantoin, but by desensitizing some of them he was able to reduce this figure to 7 per cent.

Lennox [6] listed 14 per cent as having a generalized measles-like rash. In these cases, blood cell counts, at the onset and at the height of the eruption, did not reveal any abnormalities except moderate leukocytosis.

Elsewhere[7] I have reported the results of one year's administration of methylphenylethyl hydantoin to a group of 26 institutionalized patients. I indicated that (1) the occurrence of toxic reactions did not necessarily increase proportionately with the dosage and (2) toxic reactions appeared to depend more on the patient than on the drug. Of the toxic reactions, the complaint of drowsiness was the most frequent, but was independent of the dosage or the concurrent administration of phenobarbital. Only 1 patient (3.8 per cent) presented a rash, which was scarlatiniform in nature and which appeared when the patient received only 0.1 Gm. daily. This rash disappeared when treatment with the drug was discontinued and did not reappear when the patient was again receiving the drug. By starting, the second time, with a smaller dosage and raising the dosage slowly, it was eventually possible for the patient to receive 0.3 Gm. daily.

Since the completion of the one year study on the original 26 patients, the drug has become more plentiful and an increasing number of patients are gradually being added to the original group. In only 1 of these did a rash develope. Unfortunately, this rash did not present the fairly innocuous picture I might have expected from my own past experience or the experience of others. This report is, therefore, presented to serve as a word of caution against the unbridled enthusiasm which often follows the development of a new fairly successful treatment for a condition which, in the past, has been so unresponsive.

REPORT OF A CASE

The patient, an only child, was born on April 9, 1938, following a pregnancy complicated by nausea and "heartburn." The family history indicated that a parental grandmother was committed to a mental institution with a diagnosis of melancholia. Several paternal aunts were said to have had seizures. A paternal cousin was feebleminded from birth. The maternal grandmother had conculsions. A maternal aunt was committed to a mental institution with a diagnosis of dementia precox, paranoid type. The mother had convulsions during infancy.

The mother was 18 at the time of the patient's delivery, and the delivery was normal. The patient began cutting teeth at 2 months and at 1 year had a full set of molars. At 6 or 8 months, she was dropped on her head.

She had her first convulsion at 9 months. At 11 months, she was hospitalized, with a diagnosis of acute infection of the respiratory tract and convulsions. At 15 months, she began to walk, but not without difficulty. At 3 years of age she had measles. At 4 she had whooping cough and another unidentified illness associated with a rash. At this age she had the habit of masturbation, which later ceased. She was subject to frequent earaches, particularly of the left ear. Also at this age she hit her head on the cement, causing unconsciousness.

She began regular attendance at school, but was sent home because of poor adjustment. At 5 she was hospitalized for tonsillectomy. She was again hospitalized at 6, with a diagnosis of "low intelligence, behavior problem and convulsions." These convulsions had never been frequent and had usually been associated with some infection An electroencephalogram was taken at this time and the results interpreted as no. 4 abnormal (the classification range being from 1 to 5, with 5 considered grossly abnormal). Her intelligence quotient was 86; with erratic unstable personality. Roentgenograms of the skull were reported as showing no abnormalities. She was enrolled in the White Special School, Detroit, but made no adjustment, and it was impossible to allow her in a classroom for more than an hour daily. She was soon removed as uncontrollable. She would spit, kick, and tear papers of other children.

During this 12 month interval, she was followed up in a neurology clinic, and treatment with neither diphenylhydantoin sodium nor phenobarbital affected the seizure incidence or behavior. A rash and ataxia developed with either drug. Her seizures were infrequent, and her difficulties became decreasingly of a convulsive nature and increasingly on the basis of personality. She became more talkative, repetitious, destructive and unsafe if left alone or with other children. Omission in treatment of diphenylhydantoin sodium and administration of sodium bromide did not decrease the difficulties.

At 7 she was admitted to a state mental institution, where she was described as excitable, talkative, uninhibited and brutal toward others. Her activities were of a manic nature. She seemed less mature than the average 7 year old child. She showed a severe speech defect, with inability to pronounce several letters (g, y and f) and slurring. Her intelligence quotient at this time was 66. She walked with an unsteady gait and presented constant mydriasis. Results of laboratory studies were negative.

Three months after admission she was paroled as improved, with a formal diagnosis of psychosis with convulsive disorder. She returned

5. Kozol, H. L.: Epilepsy; Treatment with the New Drug: 3-Methyl-5, 5-Phenylethylhydantoin (Phenantoin), Am. J. Psychiat. 103:154 (Sept.) 1946.

6. Lennox, W. G.: Two New Drugs in Epilepsy Therapy, Am. J. Psychiat. 103:159 (Sept.) 1946.

7. Ruskin, D. B.: Mesantoin (3-Methyl-5, 5-Phenylthylhydantoin) in the Treatment of Epilepsy in a State Hospital, to be published.

to the White Special Hospital, but was able to attend for only a few weeks, because of her behavior.

Two months after parole from the mental institution she was admitted to the Caro State Hospital.

Physical examination on admission disclosed a 7 year old girl of normal height and slightly underweight. Her mentality was estimated at approximately 4 years. She was overproductive and uninhibited. Complete physical and neurologic examinations failed to reveal any abnormalities. Roentgenograms of the chest were normal. Serologic reactions were negative (Kahn). Urinalysis revealed no abnormalities. A complete blood cell count yielded the following observations: 4,520,000 red blood cells, 8,700 white blood cells, 81 per cent hemoglobin (12.8 Gm.), 54 per cent segmented polymorphonuclear cells, 14 per cent stab forms, 29 per cent lymphocytes, 1 per cent monocytes, 1 per cent juvenile cells and 1 per cent basophils. The spinal fluid was under normal pressure and clear, with negative reactions to globulin and Kahn tests. The colloidal gold curve was 0000000000. Examinations of the stool revealed no bacilli of the typhoid dysentery type. Psychologic tests revealed an intelligence quotient of 72 by the Revised Stanford Binet (form L) and 73 by the Goodenough tests, and she obtained a performance rating of 14 in the Metropolitan Readiness Test.

Two months following her admission the school reported that she was uncooperative and unable to follow even simple instructions. However, there was some indication that she was more stable than on admission. An electroencephalogram revealed a grossly abnormal record, with petit mal variant and psychomotor components, and amplitude asymmetry.

She had one grand mal seizure during the first six months of her hospitalization. Shortly after this, she went home on vacation. While at home she had three seizures in an interval of less than twenty-four hours. These seizures occurred ten days after her return home and were followed immediately by vomiting and acute pharyngitis. The latter responded to treatment with sulfonamide drugs. However, a rash developed from this drug. Five days after the onset she presented a rash of measles. She was returned to the hospital two months later. After her return in 1947, she had three seizures, the last one occurring simultaneously with the onset of chickenpox. On Jan. 31, 1948, she had two grand mal seizures. Her behavior continued to be a problem both in the cottage and in the school. She was given methylphenylethyl hydantoin, 0.3 Gm. daily, beginning February 3. On February 14 a rash developed, characterized by maculas of pinhead size on the face and neck. She was feeling well. There was no erythema of the throat, no spots on the mucous membranes of the mouth or throat and no cervical adenitis. Her temperature was normal. On the next day there was a considerable increase in the number and size of erythematous patches, involving the face, neck, abdomen, thigh and back and, to some extent, the legs and forearms. There was a moderate amount of injection of the conjunctivas. There was no change from normal in the appearance of the buccal mucosa, but the pharynx was slightly hyperemic. The temperature was 100 F. She did not appear ill otherwise and ate heartily. Treatment with methylphenylethyl hydantoin was abruptly discontinued.

Two days after the rash developed, she was hospitalized with a temperature of 105 F. She appeared prostrated and was extremely uncomfortable from the itching. The face was swollen. The eruption was coalescing, and large blebs developed at the mucocutaneous junction on the lower lip. All cutaneous lesions were now elevated, palpable and beginning to form blebs and bullae. These bullae coalesced, so that large areas resembled an extensive second degree burn superimposed on a red maculopapular

Fig. 2.—Photographs taken on the third day of the rash. *A*, demonstration of both broken and unbroken blisters on the face and the trunk, involvement of the lips and elevated nature of the right forearm. *B*, involvement of the posterior portion of the trunk, with a collapsed blister between the scapulas.

rash. Ulcers developed on the buccal mucosa. The photographs in figure 2 represent the condition as of February 17, two weeks after the start of treatment with the drug and three days after discontinuance. She received penicillin, 40,000 units about every three hours, ½ grain of codeine as needed, 4 cat units of a digitalis preparation ("digifolin"), oxygen by tent and fluids by mouth at the time of hospitalization. This treatment

was continued daily, except that the digitalis preparation was reduced in dosage to 2 cat units. She became distended on the second day of hospitalization, as a result of paralytic ileus.

Attempts were made to administer fluids and plasma intravenously, but this had to be discarded as so much skin was involved in the reaction that it was impossible to locate a vein. The eyes and lips were treated prophylactically. Enemas failed to reduce the distension, and a neostigmine preparation, which was administered every three hours, was used to combat the ileus. An attempt to cut down on a vein, under local anesthesia, met with failure, as the veins that were encountered collapsed and failed to remain patent.

Fluids were administered subcutaneously until the fourth day of hospitalization, at which time the ileus had cleared and she was able to take limited amounts of fluid by mouth. Her general condition on that day was no worse than on the second day of hospitalization. Figure 3 indicates the condition of the skin. Even the soles of the feet were involved with rash and blisters. It was necessary, on the second day, to use morphine compound (1/6 grain) instead of codeine to relieve the pain and restlessness. A week after hospitalization, the patient had lost the superficial layer of the skin of two thirds of the body. During the first week of hospitalization decided leukocytosis developed. There was originally a relative as well as an absolute increase of stab nuclear neutrophils. Within a few days there

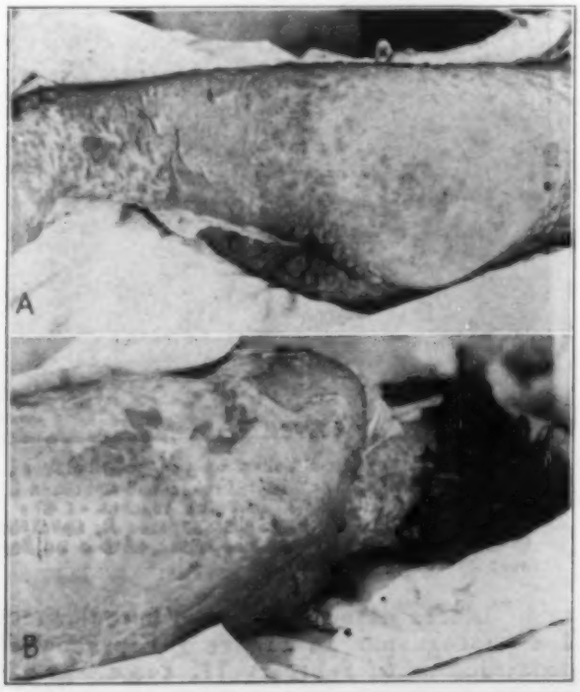

Fig. 3.—Photographs taken on the fifth day of the rash. *A*, progression from the rash to the blistered condition demonstrated here. *B*, destruction and peeling of the corium.

was a progressive drop in the total white cell count, with a drop of mature neutrophils to 8 per cent and stab nuclear neutrophils to 30 per cent and a real as well as relative increase of lymphocytes to 59 per cent. The mature neutrophils continued to remain at a low level; there was a temporary secondary rise of the stab nuclear cells and a gradual decline in the lymphocytes. Greater areas of the skin continued to become involved. Treatment of the skin became mainly a problem of arresting the loss of serum, as in a burn. Secondary leukocytosis developed, followed by a second drop in the white cell count and a terminal outpouring into the blood stream

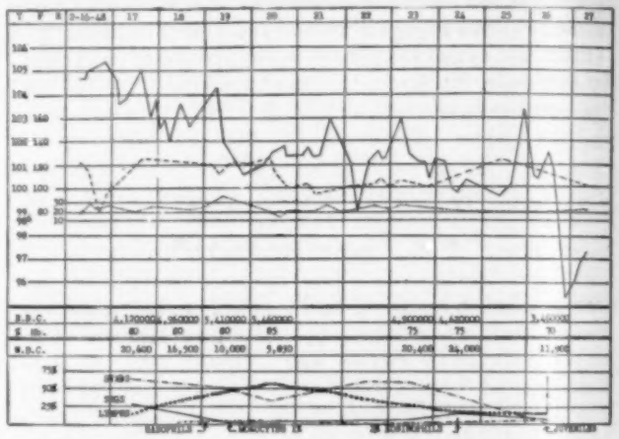

Fig. 4.—Chart showing the temperature, pulse rate, respirations and results of studies of the blood during the period of illness.

of juvenile forms of the neutrophilic cell (fig. 4). With this last change in the blood, there was also a decrease in red blood cells and hemoglobin. With no apparent change in her condition otherwise, she gasped and died. Permission for autopsy could not be obtained. The patient had one seizure on the day that treatment with methylphenylethyl hydantoin was discontinued and none from then to the time of her death, February 27.

SUMMARY

A girl, aged 10, had a history of repeated manifestations of cutaneous reactions to various drugs, including anticonvulsants. After having taken methylphenylethyl hydantoin ("mesantoin"), 0.3 Gm. daily for twelve days, a rash developed, with changes in the blood picture. The clinical course led rapidly to her death.

CONCLUSIONS

Methylphenylethyl hydantoin ("mesantoin"), which has proved to be useful as an anticonvulsant in epilepsy, may cause serious side effects, among which are reactions of the skin and changes in the blood. Although the rashes are usually benign and respond quickly to cessation of treatment with the drug, it is possible for this complication to be of a serious nature. It is necessary to use extreme caution in treatment with this drug, especially if the patient has shown earlier sensitivity of the skin. This complication does not necessarily depend on the administration of a large dosage.

All patients should receive examinations of the blood before and during treatment with this drug. The examination of the white blood cells and a blood smear are as important (if not more so) as an examination of the red blood cells and the estimation of hemoglobin. The physician should inquire into the possibility of previous changes in the blood, whether or not the changes may have been the result of ingestion of other drugs. Once it has been determined that methylphenylethyl hydantoin should be used, it should be administered in small initial doses and increases should be made slowly and by small increments. This cannot be stressed too strongly. All patients chosen to receive this drug should be cautioned to discontinue its use as soon as side effects are experienced and to report this to their physicians.

Clinical Notes, Suggestions and New Instruments

MANAGEMENT OF GASTRIC HEMORRHAGE USING TOPICAL THROMBIN

T. M. ROGERS, M. D.
Sterling, Colo.

The most common complication of peptic ulcer is hemorrhage. In persons over 40, because of the rigidity of the arterial walls, severe bleeding is more common. The mortality in this age group is eight times that of those under 40. The mortality of those whose hemoglobin is below 9.4 Gm. (60 per cent) is four times that of those whose hemoglobin is above 60 per cent.[1]

Thrombin is a sterile, standardized, hemostatic powder obtained from bovine plasma, and was originally intended to contract capillary bleeding either as a dry powder or in sterile isotonic solution. Its action depends on its ability to clot fibrinogen, thus forming a natural clot which seals the capillary ends. It is supplied in sterile packages of ampules containing 5,000 Iowa units.[2]

REPORT OF CASES

CASE 1.—On March 15, 1947, at about 3 a.m., A.J., a business man aged 64, was found in a semicoma lying on the bathroom floor of his home in a pool of vomited blood. Two days previously, he recalled later, he had become nauseated and "fainted" after passing a large tarry stool. He denied any recent gastric pain or distress. A local physician was called and morphine was given subcutaneously; he was restricted from fluids or food and kept at bed rest. During the day he had a large coffee ground vomitus and in the evening of the following day he was referred to the hospital. In 1934, he recalled later, he was placed on an ulcer regimen for four months, after roentgen examination during the course of investigation for epigastric distress. Physical examination showed a moderately ill man appearing weak with drawn facies and a subicteric tint to the skin and sclera. The skin and mucous membranes were dry with evidence of dried blood about the lips. Heart and lungs were normal, blood pressure was 110 systolic and 60 diastolic; the pulse rate was 72. The abdomen was distended and slightly tympanitic, with tenderness in the upper right quadrant. Except for hyperactive reflexes and tarry residue in the rectum, the examination gave normal results, urine was normal, hemoglobin 9.4 Gm., red blood cell count 3,050,000, white blood cell count 6,000, with 75 per cent segmented cells.

Because of the relatively good condition of the patient at this time it was felt that conservatism was the course to follow, and he was placed on a modified Andresen regimen, consisting of hourly feedings of skimmed milk and gelatin solution, with hard candy between feedings. Meperidine hydrochloride and barbiturates were administered freely for restlessness and pain. During the afternoon of the following day he became extremely faint, vomited a large amount of bright red blood and chilled; the pulse became rapid and irregular as he showed signs of air hunger and hemorrhage. The hemoglobin dropped to 6.3 Gm., the red blood cell count dropped to 2,650,000 and the white blood cell count rose to 10,000. In spite of vitamin K, liver extract, epinephrine orally, sedation, subcutaneous administration of dextrose and isotonic solution of sodium chloride with human blood plasma, and blood transfusion his condition became more precarious with each succeeding day. On March 20, 1947, the red blood count dropped to 1,800,000, the temperature rose to 103.6 F., the pulse rate to 140 and the respiration rate to 140. He was irrational, confused, noisy and uncooperative. Each transfusion appeared to initiate bright red vomitus and large involuntary tarry stools. In desperation, "pentothal sodium" was given intravenously in a 10 per cent solution and repeated as necessary. This was followed by short periods of deep sleep with quietness and rest. The pulse and respiration rate and temperature dropped, and he became more rational. Later this was administered into the blood transfusion tubing, and a more prolonged and lighter anesthesia resulted. Just at the time that my associates and I felt that we were gaining, on the afternoon of the fifth hospital day, he showed more signs of hemorrhage and within an hour vomited a large amount of bright red blood and passed several blood red stools. With the patient practically moribund we mixed 10,000 units of thrombin with 2.5 cc. of isotonic sodium chloride solution and administered it orally. From this time on there was a gradual but steady improvement without hematemesis and with only an occasional tarry stool. The usual ulcer type of regimen with supportive treatment and the continued use of thrombin orally, three doses daily for five days, and "pentothal sodium" intravenously, as needed, resulted in steady progressive improvenent. On the seventeenth hospital day he was up and out of bed. He was discharged to his home on the twenty-seventh day. Hemoglobin had returned to 10,9 Gm. and red blood cell count to 3,500,000.

During the early part of his hospitalization we felt that we were dealing with an ulceration into a sclerotic large blood vessel. We were more than once tempted to resort to surgery, but with statistics revealing increased mortality, we continued to follow the so-called conservative course. Topical trombin having been used to stop bleeding in certain previous operative procedures, a try here proved to be of definite advantage at a critical period.

Subsequently, as the strength, general condition and blood count improved, a roentgen examination on May 1, 1947 revealed a healing prepyloric ulcer. On May 5, 1947, a posterior gastroenterostomy was

1. Pelner, L.: Gastroenterology in General Practice. Springfield, Ill., Charles C Thomas, Publisher, 1946, p. 39.

2. Parke-Davis Company. An Iowa unit is that amount of thrombin to clot 1 cc. of standard fibrinogen in fifteen seconds.

performed. A dense scar was noted in the prepyloric area. Recovery was uneventful, except for peripheral neuritis of his left arm, which is slowly diminishing with large doses of thiamine hydrochloride and physical therapy. While on a modified bland diet he is carrying out his normal activities. There has been no return of symptoms.

CASE 2.—J.G., a student aged 16 years, was admitted via ambulance to the hospital on Sept. 16, 1947, after a large bloody emesis two hours previously. On arrival at the hospital he vomited about 2 cups of dark brown blood. Three weeks previously a diagnosis of rheumatic fever had been made, and he was given moderately large doses of acetylsalicylic acid. For three days before admission he gave rather indefinite symptoms of gastric distress one and a half to two hours after meals. Physical examination revealed an acutely ill, apprehensive lad, with a rapid, thready pulse; a mild systolic murmur was heard at the apex and in the left axillary region. There was a definite midepigastric tenderness. Complete blood cell count taken immediately revealed 3,050,000 red cells, 11,000 white cells and hemoglobin of 9.4 Gm. Thrombin, 10,000 units in an isotonic solution, was given by mouth that evening and repeated three times the following day. A modified Andresen diet was given. Recovery was prompt and uneventful. There being no further evidence of hemorrhage, he was discharged September 28 on a modified ulcer diet. To date, Dec. 4, 1947 he has had no recurrence of bleeding or gastric distress. Salicylates are given, enteric coated. For reasons best known to his parents, roentgen examination was refused.

SUMMARY

Two cases of gastric hemorrhage in which there was dramatic response to orally administered topical thrombin was reported, in 1 of which there was a gastric hemorrhage in a 64 year old man to the extent that he was nearly exsanguinated. This was proved to b due to a peptic ulcer eroding into a large blood vessel. The second case was in a youth aged 16 who had two moderate sized gastric hemorrhages which were due to acute gastritis. Both patients responded rapidly to orally administered topical thrombin.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following reports. HOWARD A. CARTER, *Secretary.*

MICROWAVE RADIATIONS

Heating of Human and Animal Tissues by Means of High Frequency Current with Wavelength of Twelve Centimeters (The Microtherm)

STAFFORD L. OSBORNE, Ph.D.
and
JESSE N. FREDERICK, M.S.
Chicago

Radar was made possible by development of the magnetron oscillator tube. Radar was one of the closely guarded secrets during the war. Now, with the ending of hostilities, its field of usefulness has been extended into the field of medicine. The Raytheon microtherm, which generates energy in a continuous wave, air-cooled magnetron oscillator tube, is the first generator of this type to be developed for the heating of human tissues. The microtherm operates at a frequency of 2,400 to 2,500 megacycles, or at a wavelength of approximately 12 cm. with a maximum power output of 125 watts. The energy is applied to the patient by means of a director (fig. 1). The entire

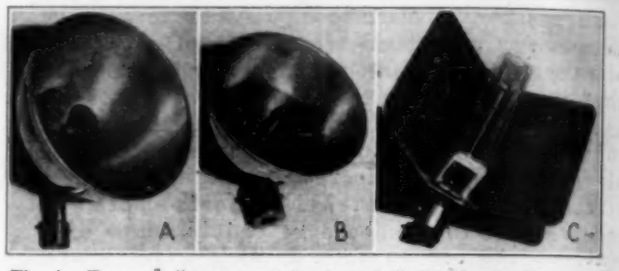

Fig. 1.—Types of directors: *A*, hemispherical, 6 inches in diameter; *B* hemispherical, 4 inches in diameter, and *C*, rectangular

radio-frequency circuit consists of the magnetron oscillating tube with a coaxial cable connected to a director.

This investigation was undertaken to determine whether high frequency current of this magnitude would heat living tissues to a temperature of 104 F., at a depth of 2 inches (5.08 cm.). It was also necessary to learn whether the heat gradient as the result of treatment was normal, that is, a decreasing temperature from superficial to the deeper underlying tissues, or whether there was a reversal of this normal heat gradient. The Council on Physical Medicine of the American Medical Association loaned a Raytheon microtherm to make these studies possible. The following experiments were undertaken:

1. The thighs of dogs were subjected to the high frequency energy. Temperature measurements were taken at a depth of ½, 1, 1½ and 2 inches (1.27, 2.54, 3.81 and 5.08 cm.) from the surface to secure the heat gradient from the surface to a depth of 2 inches (5.08 cm.).

2. The eyes of dogs were exposed to the high frequency energy. Temperature measurements of the vitreous humor of the eye were taken. The eyes were examined for evidence of damage.

3. The frontal sinus of the dog was subjected to the high frequency field. Temperature measurements were taken within the frontal sinus cavity.

4. The thighs of human subjects were treated and temperatures recorded at a depth of approximately 2 inches.

METHODS

All temperatures were measured with thermocouples made of constantan and copper wires (28 gage Leeds and Northrup double cotton covered and enameled) soldered into the tip of a 16 gage lumbar puncture hypodermic needle. The couples were connected to a potentiometer of requisite sensitivity. For the animal work, five hypodermic needle thermocouples and one rectal thermocouple were connected by means of a switch box to the potentiometer. The couples were calibrated against a thermometer calibrated by the Bureau of Standards with scale divisions in 0.1 degree Fahrenheit. Calibration tests indicated that the potentiometer and thermocouple combinations were accurate to within ± 0.2 degree F. The thermocouples were removed from the field of microwave emanation during the heating. To conform to general clinical practice, microwaves were applied for twenty minutes.

The Raytheon microtherm was used for all experiments. Radio waves of 12.2 cm. length were channeled through a coaxial cable to a director. From the director the waves were beamed onto the surface to be heated. Two hemispherical directors, one 4 inches (10.16 cm.) and the other 6 inches (15.24 cm.) in diameter, and a rectangular director were used.

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From the Departments of Physical Medicine and Physiology, Northwestern University Medical School.

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The hemispherical directors produced circular surface-heating patterns with maximum heating approximately ½ inch (1.27 cm.) inside the outer circumference of the director. The rectangular director produced an elliptical surface-heating pattern with maximum heating at the center. All temperatures were taken within the area of maximum heating.

1. *Leg Muscle of the Dog.*—Fourteen experiments were carried out on animals under anesthesia with pentobarbital sodium. The hair was clipped from the lateral aspect of the thigh, and thermocouples were inserted within an area 1 inch (2.54 cm.) square posterior to the femur. Temperature measurements were made after a suitable control period preceding and following each treatment. Skin temperatures were omitted because they were considered unreliable. Subcutaneous temperatures were taken within twenty seconds after the cessation of heating. Temperatures were then taken in the following order and at the following depths: ½, 1, 1½ and 2 inches (1.27, 2.54, 3.81 and 5.08 cm.). The entire procedure was completed within 1½ minutes after the heating was stopped.

2. *Eye of the Dog.*—Seven treatments (exposure of the eyes to the high frequency energy) were given on "acute" animals and six treatments on 1 "chronic" animal. On 1 "acute" animal the temperatures of the vitreous body of the two normal eyes were compared and found to be within 0.2 degree Fahrenheit of each other. In the acute animals control temperatures were taken in the vitreous body of one eye and the other eye was treated. Final temperatures were taken in the vitreous body of the treated eye. One animal received a series of six treatments on the left eye over a period of three weeks. Each treatment was given under anesthesia with pentobarbital sodium. Temperatures were not taken, but the treated eye was studied with an ophthalmoscope before and after each treatment. The temperature reached in the chronic animal was between 105 and 106 F., based on temperatures obtained in acute animals receiving similar treatment. All treatments in the "acute" and "chronic animals were given with the rectangular director at a spacing of 2 inches (5.08 cm.). Rectal temperatures were taken before and after each treatment.

3. *Frontal Sinus of the Dog.*—Six experiments were carried out on dogs under anesthesia with pentobarbital sodium. Control temperatures were taken on the sinus to be treated by inserting the thermocouple through the medial end of the supraorbital border of the frontal bone into the cavity of the sinus. The rectangular director was used at a spacing of 2 inches (5.08 cm.).

RESULTS

1. *Leg Muscles of the Dog.*—The average thigh temperature for ten experiments using a 6 inch (15.24 cm.) director placed at a skin-source distance of 1 inch (2.54 cm.) is recorded in table 1.

The average thigh temperature secured on 3 animals by using the 6 inch (15.24 cm.) director but at a 2 inch (5.08 cm.) skin-source distance is given in table 2.

TABLE 1.—*Average Thigh Temperature for Ten Experiments (Six Inch Director at a Skin-Source Distance of One Inch)*

Depth of Thermocouple	Temperature F. Before	After	Maximum
Subcutaneous	95.7	108.0	112.7
½ inch	97.4	107.1	
1 inch	99.1	106.3	
1½ inches	100.4	105.1	
2 inches	100.4	104.1	106.1
Rectal	102.2	102.4	

The temperature difference between the subcutaneous and 1 inch (2.54 cm.) level showed more variation among individual experiments than did the difference between the 1 inch (2.54 cm.) and 2 inch (5.08 cm.) levels. In one experiment the animal was exposed to a strong breeze during treatment. The final temperatures showed an increase from the subcutaneous level to a depth of 1½ inches (3.81 cm.), as shown in table 3.

Another unusual situation was encountered in one single experiment. The final temperature at a depth of 1½ inches (3.81 cm.) was 107.3 F., while at the 1 inch (2.54 cm.) depth the temperature was only 106.6 F. At autopsy the thermocouple at the 1½ inch (3.81 cm.) level was found to be embedded in a mass of fat.

TABLE 2.—*Average Thigh Temperature in Three Experiments (Six Inch Director at Skin-Source Distance of Two Inches)*

Depth of Thermocouple	Temperature F. Before	After
Subcutaneous	95.9	107.7
½ inch	98.2	106.6
1 inch	98.8	106.2
1½ inches	99.6	103.8
2 inches	99.4	103.2
Rectal	101.5	101.5

TABLE 3.—*Increase in Temperature from Subcutaneous Level to Depth of Two Inches*

Final subcutaneous temperature	100.8 F.
Final temperature at depth of ½ inch	104.4
Final temperature at depth of 1 inch	105.4
Final temperature at depth of 1½ inches	107.1
Final temperature at depth of 2 inches	104.4

The average thigh temperatures in four experiments with the smaller 4 inch (10.16 cm.) director, used at a skin-source distance of 2 inches (5.08 cm.) and directed along the anterior border of the thigh, are recorded in table 4.

In two of these experiments the animal received burns along the anterior border of both thighs. The burned areas sloughed to a depth of approximately ½ inch (1.27 cm.) five days later, and the lesion required six weeks to heal. Figure 2 shows a typical cooling curve for subcutaneous tissues and tissues heated at a depth of 2 inches (5.08 cm.).

TABLE 4.—*Average Thigh Temperatures of Four Experiments (Four Inch Director at Skin-Source Distance of Two Inches)*

	Temperature F. Before	After
Subcutaneous	94.5	111.0
Depth of 2 inches	97.8	103.3
Rectal	102.2	102.7

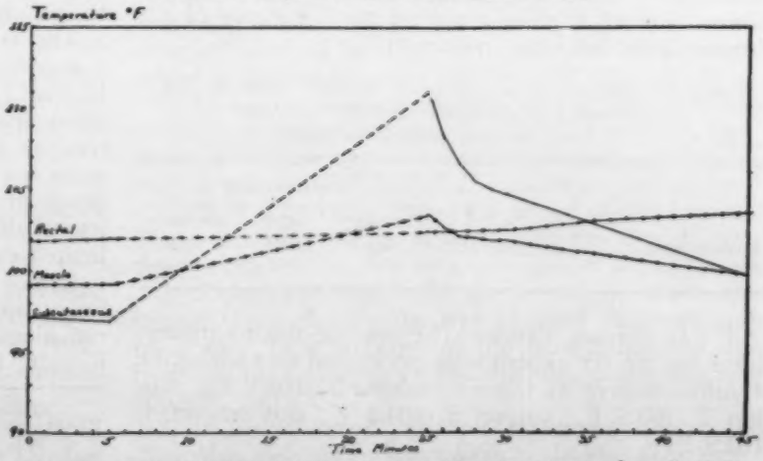

Fig. 2.—Typical cooling curves for subcutaneous tissue and muscle at a depth of 2 inches

2. *Eye of the Dog.*—The average temperatures of the vitreous body of the eye for seven acute experiments are recorded in table 5. The rectangular director was placed at a 2 inch (5.08 cm.) skin-source distance from

the eye. Treatment was given for a period of twenty minutes with the generator set for 60 to 80 per cent of maximum output. Figure 3 shows the cooling curve for the vitreous body.

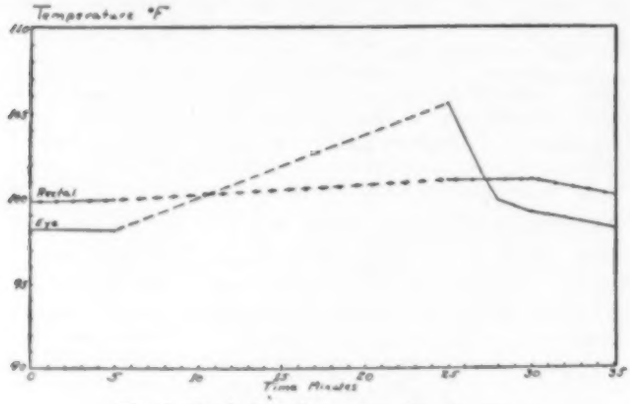

Fig. 3.—Typical cooling curve for the eye.

The left eye of 1 animal received six treatments. Inasmuch as the average final temperature of the acute

TABLE 5.—*Average Temperatures of Vitreous for Seven Acute Experiments (Rectangular Director at Skin-Source Distance of Two Inches)*

	Temperature F.		
	Before	After	Maximum
Vitreous body	98.8	105.8	112.2
Rectal	100.3	101.3	

eye experiments was 105.8 F., the assumption has been made that the final temperature of the chronic animal should be approximately 105.8 F. since all experiments were run under identical conditions. Following treatment there was no evidence of damage to the retina and no enlargement of the retinal vessels. There was increased redness of the conjunctiva, which disappeared a short time after cessation of treatment. There was no damage to tissues surrounding the eye in either acute or chronic dogs.

3. *Frontal Sinus of the Dog.*—The average temperatures of the six experiments on the frontal sinus are found in table 6. The rectangular director was placed at a 2 inch (5.08 cm.) skin-source distance from the sinus. Figure 4 gives a typical cooling curve of the frontal sinus following treatment.

TABLE 6.—*Average Temperature of Frontal Sinus in Six Experiments (Rectangular Director at Skin-Source Distance of Two Inches)*

	Temperature F		
	Before	After	Maximum
Frontal sinus	95.1	105.1	106.9
Rectal	101.2	101.9	

4. *The Human Thigh.*—The average thigh temperatures for the six experiments performed on each of the 4 subjects were as follows: subject 1, 105.1 F.; subject 2, 103.5 F.; subject 3, 104.2 F., and subject 4, 103.9 F.

The average for the total of twenty-four experiments was 104.2 F. One experiment was terminated at ten minutes due to a pronounced erythema around the cannula. This was found to be due to moisture which had collected under the gauze covering the cannula. On subject 4 a superficial blister ½ inch (1.27 cm.) square was produced approximately 2 inches (5.08 cm.) from the cannula. Within the next ten days the blister dried and disappeared with no discomfort to the patient. In all experiments erythema was at a minimum when compared to the erythema produced by the usual short wave diathermy treatment.

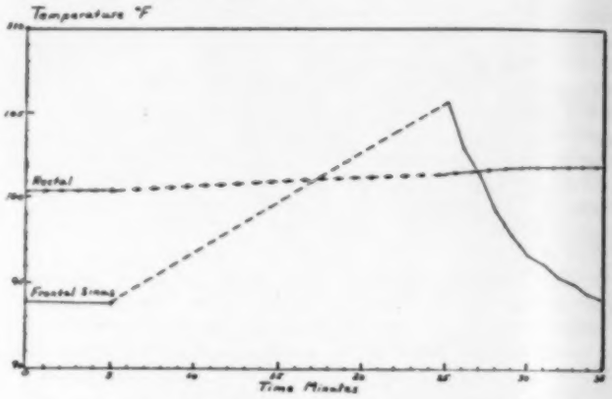

Fig. 4.—Typical cooling curve for the frontal sinus.

COMMENT

The question of ill effects from exposure to radar waves has been investigated by Lidman and Cohen,[1] Daily [2] and Fallis.[3] Lidman and Cohen could find no evidence of stimulation or depression of erythropoietic and leukopoietic systems of army personnel exposed to radiation from standard radar sets for periods ranging from a few months to nine years. Daily studied navy personnel who were exposed for several hours per day for periods up to nine years. He found no hematologic changes, no premature alopecia, no dermatologic manifestations and no clinical evidence of damage to reproductive tissues. Several subjects complained of headaches after exposure to radar waves for several hours. The headaches always disappeared spontaneously within one half to one hour after cessaation of exposure. Fallis exposed guinea pigs to radiations from the air-borne unit, SCR-517, which has an output of 45 kilowatts. The animals were exposed for three hours daily for eight weeks at a distance of 2 feet (60.96 cm.). He noted no effect on appearance, growth, body temperature or reproduction and no histologic changes.

The microtherm unit used in our experiments has a maximum output of 125 watts. The output of the SCR-517 used by Fallis is three hundred and sixty times the maximum output of the microtherm. In contrast to the foregoing experiments we exposed local areas for twenty minute periods. In view of the evidence produced by these investigators it would seem improbable that any ill effects should result from the limited exposure used in clinical practice.

1. *Leg Muscles of the Dog.*—The heat produced in living animal tissues by exposure to high frequency radiations of 12 cm. wavelength has been studied by Krusen, Herrick, Leden and Wakim.[4] They recorded

1. Lidman, B. I., and Cohen, C.: Effect of Radar Emanations of the Hematopoietic System, Air Surgeon's Bull. **2**: 448-449, 1945.

2. Daily, L. E.: A Clinical Study of the Results of Exposure of Laboratory Personnel to Radar and to High Frequency Radio, U. S. Nav. M. Bull. **41**: 1052-1056, 1943.

3. Fallis, R. H., Jr.: Studies on the Biological Effect of High Frequency Radio Waves (Radar), Am. J. Physiol. **147**: 281-283, 1946.

4. Krusen, F. H.; Herrick, J. F.; Leden, U., and Wakim, K. G.: Microkymatotherapy: Preliminary Report of Experimental Studies of the Heating Effect of Microwaves ("Radar") in Living Tissues, Proc. Staff Meet. Mayo Clin. **22**: 209-224, 1947.

temperatures of the skin surface, of subcutaeous tissue, of superficial (1.9 cm.) layer of muscle and deep (3 cm.) layer of muscle. In these experiments they have shown a positive temperature gradient from the skin surface to the deep layer of muscle. If radiations of this magnitude produce an increasing temperature from the surface to the deeper layers, a burn could occur in the deeper layers although the surface was quite unharmed.

On the other hand our experiments show a negative temperature gradient from the subcutaneous level to a depth of 2 inches (5.08 cm.) except in the one experiment cited. When the experiment was repeated and the animal was protected from the breeze, the final temperatures showed the usual negative gradient. In one other animal we observed in three successive experiments that the final temperature at a depth of 1½ inches (3.81 cm.) was greater than the final temperature at 1 inch (2.54 cm.). At autopsy it was found that the cannula at this depth was embedded in a mass of fat. In a report from the Raytheon Laboratories [5] it was shown that in nonliving tissue fat absorbs energy of this wavelength more readily than does lean meat. From this one experiment it appears that this might also hold true for living tissues. Further experimentation is definitely needed.

2. *Eye of the Dog.*—Puntenney and Osborne [6] used a 6 meter wave diathermy generator and applied the high frequency current by means of Schliephake glass electrodes to the eyes of experimental animals. They reported difficulty in localizing the heat solely to the eye without damage to the surrounding tissues. They also found a close relationship between the general body temperature and that of the eye during the heating and cooling periods.

Contrary to the results obtained by these investigators, no difficulty was encountered in focusing heat to the eye when the microtherm generator was used in our experiments. Contiguous tissues were not injured. In our animals the general body temperature was not increased in spite of the high vitreous temperatures secured. It would appear from our experiments that this method should be a safe and excellent means for the application of localized heat to the eye.

3. *The Frontal Sinus of the Dog.*—Andreen and Osborne [7] measured temperature of the maxillary sinus of human subjects using, among other methods of heating, the high frequency current. They used both conventional diathermy and induction heating. The highest temperature reported by them after a twenty minute exposure was 99.1 F., a rise of approximately 0.9 degree Fahrenheit. Our experiments on the frontal sinus of the dog showed for the total experiments an average temperature elevation to 105.1 F. In 1 instance a temperature of 106.9 F. was secured. This radiation should be used, therefore, to see whether these rises in temperature can be duplicated in the maxillary sinus of the human subject. At present we have no other means of heating this region of the head.

4. *Heating of the Human Thigh.*—These are the first experiments to be reported giving the internal temperature of the human thigh at a depth of approximately 2 inches (5.08 cm.) following exposure to radiation of 12 cm. wavelength. Our experiments show that a temperature of 104.2 F. can be secured at a depth of 2 inches (5.08 cm.) in the human thigh by means of the microtherm diathermy generator. This meets the heating requirements of the Council on Physical Medicine of the American Medical Association. Heat sensation on the surface is not pronounced. Erythema is at a minimum and generally much less than that noted with the usual short wave diathermy treatment. It must not be lost sight of, however, that these two criteria have been a safety factor for adequate dosage. Thus, in careless hands heating by this method might be dangerous. Our animal experiments show that the heat decreases from the superficial to the deeper tissues, but this temperature gradient is not as steep as in the short wave diathermy. Krusen, Herrick, Leden and Wakim in their animal experiments show a reversal of the temperature gradient. Further investigation of this factor should be undertaken. A disadvantage of this new method of tissue heating, in our opinion, is its definite localization. In all our experiments it will be noted that body temperature undergoes little change. There has been a gradually growing appreciation that diathermy is more effective when large areas, such as an entire limb, are heated rather than a definite localized area. By this large area technic the circulation of an entire limb can be influenced, and, if dosage of radiation is low, an active hyperemia is secured and passive congestion avoided. At present it is not possible to heat large areas of the body with the microtherm because of the limited size and shape of the directors in use. This would seem to be a distinct disadvantage.

SUMMARY

1. Microwave (radar) radiations were applied to the thighs of dogs, and temperature measurements made subcutaneously and at ½ inch (1.27 cm.) intervals to a depth of 2 inches (5.08 cm.). Following exposure to high frequency energy the maximum temperature was observed in the subcutaneous level and decreasing temperatures were found with increasing depth. The average temperature at a depth of 2 inches (5.08 cm.) in ten experiments using the 6 inch (15.24 cm.) hemispherical director at a spacing of 1 inch (2.54 cm.) from the skin surface was 104.1 F. (40.1 C.).

2. In seven "acute" experiments on dogs the eye was exposed to microwave radiations. The average temperature of the vitreous body following microwave treatment was 105.8 F. (41 C.). One animal received a series of six treatments over a period of three weeks. There was no evidence of damage to the eyes or contiguous tissues.

3. Six experiments were performed in which the frontal sinus of the dog was exposed to microwave radiations. The average of the temperatures of the frontal sinus following exposure to the microwave was 105.1 F. (40.6 C.).

4. In twenty-four experiments on human subjects the thigh was exposed to microwave radiation. The average temperature at a depth of approximately 2 inches (5.08 cm.) immediately following microwave irradiation was 104.2 F. (40.1 C.). One small superficial blister was produced. By the tenth day the blister had disappeared. The treatments were comfortable to the

5. Experiments by Raytheon Manufacturing Company regarding claims for the microtherm (unpublished data submitted to the Council on Physical Medicine of the American Medical Association). Raytheon Microtherm Acceptable, report of the Council on Physical Medicine, J.A.M.A. 135:986 (Dec. 13) 1947.

6. Puntenney, I., and Osborne, S. L.: Temperature Changes and Changes in Caliber of Retinal Blood Vessels After Short Wave Diathermy, Arch. Ophth. 22: 211-227 (Aug.) 1939.

7. Andreen, M. A., and Osborne, S. L.: Measurements of the Temperature of the Maxillary Sinus After Treatment by Various Methods of Heating. A Comparative Study, Arch. Otolaryng. 24: 331-337 (Sept.) 1936.

patients, and a minimum of erythema was noted. Microwave treatment should be applied cautiously because the minimum of erythema and discomfort to the patient gives the operator less warning of overheating. The limitations of localized heating by this method have been indicated.

ARTEE CURETTE ACCEPTABLE

Manufacturer: Artee Products Company, Box 3974, Cleveland 20.

The Artee Curette is a small instrument intended for use in removing foreign bodies from the surface of the eye. It was formerly called the Professional Safe Eye Snare. It consists of a cylindric middle portion with a magnet at one end and a wire loop at the other; the two ends are capped with metal screwtops, of which one bears a clip to hold it in the pocket like the clip on a mechanical pencil. The over-all length of the instrument is 11.7 cm. (4.6 inches), and the diameter is slightly less than 1 cm. (0.4 inch). The magnet is stated to be made of "alnico V." The rest of the instrument, including the wire, is stated to be made of stainless steel. It is stated that the loop is made of flexible wire 0.005 inch (0.13 mm.) in diameter which has been drawn through diamond dies to give it a highly polished mirror finish.

GENERAL AUTOMATIC ELECTRICALLY COOLED OXYGEN TENT ACCEPTABLE

Manufacturer: General Hospital Supply Service, 256 West 69th Street, New York 23.

The General Automatic Electrically Cooled Oxygen Tent consists essentially of two parts, a transparent canopy suspended over the upper part of the patient's body and a cabinet, mounted on casters, through which the oxygen from a supply tank passes into the canopy. The cabinet contains the electrical apparatus, which includes a sealed, self-lubricating compressor and uses 4½ amperes on a 110-115 volt 60 cycle alternating current. A direct current unit is furnished at an extra charge, and special compressors can also be furnished. The cabinet without canopy and hangers weighs from 89 to 91 Kg. (196 to 200 pounds). The shipping weight including canopy and hanger varies from 117 to 136 Kg. (257 to 300 pounds) depending on the material used for crating.

When tested for inflammability, the canopy was found not to maintain combustion in air. In 60 per cent oxygen it burned brightly, but there was no "flash fire." Users of oxygen tents should remember that bedclothes (cellulose being a carbohydrate) burn viciously in oxygen and are as important in a consideration of fire hazards as are the materials of the tent. Oils must not be used for any purpose in connection with oxygen apparatus; this applies not only to lubricating oils for the machinery but also to oils that might be applied to the skin of the patient and might rub off on the bedclothes.

I.E.C. NEBULIZER ACCEPTABLE

Manufacturer: Inhalational Equipment Co., Inc., 248 East 119th Street, New York 35.

The I.E.C. Nebulizer is a device made of blown "pyrex" glass, equipped with a rubber pressure bulb and designed to convert aqueous solutions into a fine air-borne mist or nebula. This nebulizer is specifically designed for administering penicillin, streptomycin, sulfathiazole, epinephrine and similar drugs by inhalation as aerosols. It produces a uniformly fine mist of microscopic particles and is made with a U-shaped bend that acts to baffle large particles, allowing only the particles of microscopic size to pass through the nebulizer.

LANTEEN FLAT SPRING MENSINGA TYPE DIAPHRAGM ACCEPTABLE

Manufacturer: Lanteen Medical Laboratories, Inc., 900 North Franklin Street, Chicago 10.

The Lanteen flat spring Mensinga type diaphragms are available in 2.5 mm. gradations from 50 to 95 mm. Each package contains one diaphragm and a tube of "Lanteen jelly," with applicator. The flat (watch-spring) type of spring imposes certain limitations on the direction in which the ring can be bent. The diaphragm is designed to be put into place without a special inserter.

The Council accepts the Lanteen Flat Spring Mensinga Type Diaphragm with the understanding that the contraceptive jelly will be omitted from the package or until such time as the latter is accepted by the Council on Pharmacy and Chemistry.

I.E.C. NEBULIZER FOR PENICILLIN AEROSOL ACCEPTABLE

Manufacturer: Inhalational Equipment Co., Inc., 248 East 119th Street, New York 35.

The I.E.C. Nebulizer for Penicillin Aerosol incorporates the inhalational nebulizer which has been accepted by the Council on Physical Medicine. The entire equipment includes a rebreathing bag, a Y tube, a water bottle and an attachment for an oxygen tank. The nebulizer is connected with an oxygen tank, which supplies both the gas and the pressure needed to make the nebulizer work. The rebreathing bag is intended to prevent waste of the penicillin, and there is the possibility of further saving in the suggested use of an arrangement for producing the aerosol during the inspiratory cycle only. The rebreathing bag has a capacity of 2,500 cc. The nebulizer is connected to an oxygen cylinder which is used to nebulize the solution at a flow of from 6 to 8 liters per minute.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

ESTROGENIC SUBSTANCES (WATER INSOLUBLE) (See New and Nonofficial Remedies 1947, p. 343).

The following dosage form has been accepted:

E.R. SQUIBB & SONS, NEW YORK

Pessaries Amniotin: 2,000 and 5,000 I.U. Each pessary contains sufficient estrogenic substances (water insoluble) in corn oil to provide the stated unitage expressed in terms of estrone, enclosed in a soft gelatin capsule for use as a vaginal suppository.

MEPERIDINE HYDROCHLORIDE (See New and Nonofficial Remedies 1947, p. 28).

The following dosage forms have been accepted:

WINTHROP-STEARNS, INC., NEW YORK

Demerol Hydrochloride (Powder): 15 Gm. vials.

Solution Demerol Hydrochloride: 50 mg. per cc., 30 cc. vials.

HEXESTROL (See New and Nonofficial Remedies 1947, p. 353).

The following dosage form has been accepted:

S.E. MASSENGILL CO., BRISTOL, TENN.

Tablets Hexestrol: 3 mg.

PHENOBARBITAL SODIUM-U.S.P. (See New and Nonofficial Remedies 1947, p. 418).

The following dosage form has been accepted:

THE WM. S. MERRELL CO., CINCINNATI

Solution Phenobarbital Sodium with Benzyl Alcohol 2% in Propylene Glycol 70%: 0.12 Gm. and 0.3 Gm., 2 cc. ampuls.

STREPTOMYCIN (See New and Nonofficial Remedies 1947, p. 150).

The following dosage form has been accepted:

THE WM. S. MERRELL CO., CINCINNATI

Streptomycin Calcium Chloride Complex: 1.3 Gm., 20 cc. vials. 1.3 Gm. of Streptomycin Calcium Chloride Complex equivalent to 1.0 Gm. of Streptomycin base.

BLOOD GROUP SPECIFIC SUBSTANCES A AND B.—A sterile solution of polysaccharide-amino acid complexes, capable of reducing the titer of the anti-A and anti-B isoagglutinins of group O donor blood. Blood group specific substance A is isolated as a precipitate from a tryptic digest of hog gastric mucin. Group specific substance B is isolated as a precipitate from a tryptic digest of the glandular portion of horse gastric mucosa.

Actions and Uses.—Blood Group Specific Substances A and B, when added to group O blood renders the latter safe for transfusion into patients having other blood groups. While this eliminates reaction attributable to the corresponding isoagglutinins, it should be kept in mind that group O blood may continue to give rise to reactions due to pyrogens, Rh incompatibility and immunologic unknowns.

Dosage.—Blood Group Specific Substances A and B may be added to group O blood just prior to administration or at the time of collection and storage. One transfusion unit (10 cc.) is capable of reducing the anti-B and anti-B isoagglutinin titer of 500 cc. of group O blood to at least one fourth of its original titer.

SHARP & DOHME, INC., PHILADELPHIA

Blood Group Specific Substances A and B: 10 cc. vials. Preserved with phenol 3%.

U.S. Patent reissue 22208 (Expiration Date July 14, 1959).

NORMAL HUMAN SERUM ALBUMIN.—The albumin fraction of normal adult human plasma. The finished product contains 25 per cent of albumin and not more than 0.33 per cent of sodium. It complies with the minimum requirements of the National Institute of Health for serum albumin and conforms to the specifications of the Commission on Plasma Fractionation.

Actions and Uses.—To reduce edema and raise the serum protein level in hypoproteinemia; also used in the treatment of shock.

Dosage.—Approximately 1 cc. per pound of body weight given at a rate not greater than 2 cc. per minute, usually to be accompanied by isotonic sodium chloride solution or 5 per cent dextrose.

CUTTER LABORATORIES, BERKELEY, CALIF.

Normal Human Serum Albumin (Salt-Poor) 25 per cent: 20 cc. bottles, containing 5 Gm. of albumin with not more than 0.33 per cent of sodium in a buffered diluent, osmotically equivalent to 100 cc. of plasma. No preservative added.

Licensed by Research Corporation. U.S. Patent 2,390,074.

DIGITOXIN—U.S.P. (See New and Nonofficial Remedies 1947, p. 248).

The following dosage form has been accepted:

THE CENTRAL PHARMACAL COMPANY, SEYMOUR, IND.

Tablets Digotoxin; 0.2 mg.

PERTUSSIS VACCINE COMBINED WITH DIPHTHERIA AND TETANUS TOXOIDS (See New and Nonofficial Remedies 1947, p. 460).

The following dosage form has been accepted:

E. R. SQUIBB & SONS, NEW YORK.

Diphtheria and Tetanus Toxoid Alum Precipitated and Pertussis Vaccine Combined: 1.5 cc. (one 3 dose immunization) and 7.5 cc. vials (five 3 dose immunizations). Preserved with sodium ethyl mercuri thiosalicylate 1:10,000.

PROTEIN AND AMINO ACID PREPARATIONS (See THE JOURNAL, March 6, 1948 p. 691).

The following dosage form has been accepted:

INTERCHEMICAL CORPORATION, UNION, N. J.

Solution Elamine: 5%, 60 Gm. bottles. A modified protein hydrolysate prepared by acid digestion of casein and supplemented with dl tryptophane.

U.S. patent pending.

BENZALKONIUM CHLORIDE—U.S.P. (See New and Nonofficial Remedies 1947, p. 69).

The following dosage form has been accepted:

WINTHROP STEARNS, INC., NEW YORK.

Solution Zephiran Chloride: 1:1,000; 14.8 cc. bottles.

TESTOSTERONE PROPIONATE—U.S.P. (See New and Nonofficial Remedies 1947 p 377)

The following additional dosage form has been accepted:

RARE CHEMICALS, INC , HARRISON N. J.

Testosterone Propionate· 25 mg. 10 cc. ıals; 50 mg., 6 cc vials

METYCAINE HYDROCHLORIDE (See New and Nonofficial Remedies 1947 p. 49)

The following additional dosage forms have been accepted:

ELI LILLY & CO., INDIANAPOLIS.

Solution Metycaine Hydrochloride in Ringer's Solution *(For Spinal Anesthesia)*: 1 5 per cent, 5 cc and 20 cc ampuls; 2 per cent, 30 cc. vials; 5 per cent, 3 cc. ampuls.

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TRIMETHADIONE (See Nev and Nonofficial Remedies 1947 p. 401).

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THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JULY 17, 1948

EDITORIAL ANNOUNCEMENT

The compositors returned to work on Monday, June 28. This issue of THE JOURNAL has been prepared in part by the use of Veri-Typer machines.

ABDOMINAL EPILEPSY

Experimental and clinical observations have demonstrated the existence of cortical representation of autonomic function and of abdominal sensations produced by cortical stimulation. Watts and Fulton [1] produced experimental diencephalic lesions which resulted in disturbed gastrointestinal activity. The probable role of the diencephalon in the production of peptic ulcer following brain trauma was emphasized by Cushing. Penfield and Gage [2] exposed the brain of a patient under local anesthesia and stimulated electrically an area just posterior to the postcentral convolution. The patient complained of a pain in the right abdominal quadrant like that experienced before her epileptic attacks. Faradic stimulation in front of this area reproduced what for her was a typical seizure. Winkelman [3] cited the case of a man who experienced intense abdominal pain as the initial symptom of a cerebral hemorrhage involving the frontoparietal area. Klingman [4] and his co-workers reported observations on 12 children with paroxysmal attacks of abdominal pain. The electroencephalographic anomalies in all these were suggestive of cerebral dysrhythmia. In 9 of the children neurologic symptoms consistent with convulsive disorder have since developed. Some of them have been free of symptoms under anticonvulsant therapy.

Moore [5] defined abdominal epilepsy as a disorder characterized by bouts of paroxysmal abdominal pain, the latter being due to hypermotility of the bowel, provoked by abnormal discharges of certain neurons in the vicinity of biochemically or structurally altered cerebral tissue, presumably situated in the premotor and postmotor cerebral cortex and/or the diencephalon. The underlying morphologic structural changes which may produce abdominal epilepsy are no different from those causing any of the other forms of generally accepted epilepsy. In a study of 14 cases of abdominal epilepsy by Moore about one half of the patients had a history of brain injury as a suggestive, and in some cases as an undoubted, relationship to the onset of abnormal cerebral discharges and the symptoms of paroxysmal abdominal pain. The majority of these patients had been treated for a variety of abdominal conditions. Some had one or more futile abdominal operations or equally futile treatment for psychoneurosis. The great majority of these patients obtained relief from anticonvulsant therapy.

Moore [6] emphasized the need for recognition of unexplained paroxysmal abdominal pain, when study of the abdominal viscera has been negative, as being possibly of cerebral origin due to abnormal discharges arising in the premotor or parietal regions.

The criteria for diagnosis are based on (1) exclusion of intrinsic visceral disease, (2) adequate historical data, (3) attack pattern of an epileptic order, (4) associated epileptic show, (5) objective evidence of cerebral organic disease or dysfunction and (6) effect of anticonvulsant drugs on the symptom of abdominal pain and on the electroencephalogram.

RABIES

During the last week in June 1948, Texas reported 23 cases of rabies in animals; Kentucky reported 11 cases and Indiana 9 cases. Of thirty-nine states making such reports to the United States Public Health Service, eighteen did not report cases. One human case was reported in Georgia.

From its foundation in 1907 through 1946 the Pasteur Institute of Southern India at Conoor [1] has given antirabic treatment to 40,421 patients bitten or scratched by rabid animals, mostly, of course, dogs. Of these patients 402 subsequently died of rabies, a death rate of 0.99 per cent. Since 1922 many subsidiary centers for antirabic treatment have been opened. From 1922 through 1946, some 208,481 patients received antirabic treatment at these centers; of these patients 716 died of rabies, a death rate of 0.34 per cent. During 1946, patients treated at the Institute were 402, with 2 deaths, and 19,922 patients were treated at subsidiary centers with 11 deaths (0.08 per cent). The biting animals in these 11 fatal cases were dogs in 9 and jackals in 2. The animals involved in all the fatal cases since 1908 are, in the order of frequency, dog (95.60 per cent), jackal, fox, wild dog, leopard, cat, sheep.

1. Watts, J. W., and Fulton, J. F.: The Effect of Lesions of the Hypothalamus on the Gastrointestinal Tract and Heart in Monkeys, Ann. Surg. **101**: 363, 1935.

2. Penfield, W., and Gage, L.: Cerebral Localization of Epileptic Manifestations, Arch. Neurol. & Psychiat. **30**: 709 (Oct.) 1933.

3. Winkelman, N. W.: in discussion on Moore,[5] p. 1240.. **129**: 1240 (Dec. 29) 1945.

4. Klingman, W. O.; Langford, W. S.; Greeley, D. M., and Hoefer, P. F. A.: Paroxysmal Attacks of Abdominal Pain, an Epileptic Equivalent in Children, Tr. Am. Neurol. A. **67**: 228, 1941.

5. Moore, M. T.: Abdominal Epilepsy, Rev. Gastroenterol. **15**: 381 (May) 1948.

6. Moore, M. T.: Paroxysmal Abdominal Pain, J. A. M. A. **129**: 1233 (Dec. 29) 1945.

1. Annual Report of the Director of the Pasteur Institute of Southern India, Conoor, 1946-1947, Madras, 1947.

Dogs are the main reservoir of rabies. As yet the practical control of canine rabies is far from effective except in countries which prevent the import of dogs unless after quarantine long enough to exclude rabies. Rabies in dogs appears to be increasing in some places. According to newspaper statements rabies in dogs in the suburban part of Cook County, Illinois, in which Chicago is located, is spreading as judged by the number of rabid dogs killed by the police. And we know that rabies in the fox is now well established in many states.[2] There continues to be urgent need for more and more active cooperatively coordinated preventive measures against rabies in dogs as well as other animals.[3]

Absolute safety from human rabies requires that the entire dog population of a community must be kept free from rabies at all times. Better means are needed to determine whether a given animal is or is not infected with rabies. This need of early reliable diagnosis applies especially to human beings exposed to possible rabies, so that more may be learned about the specific results of the antirabic treatment. At present all that usually can be determined is whether or not the biting or scratching animal had rabic infection. Finally, there is the unsolved problem of effective treatment of established rabies. Rabies should not be neglected in the testing of new antibiotics. These are problems that call for the best research that can be provided by public and private agencies. These needs have a special claim on dog lovers. Is it too much to expect of the antivivisectionists that they will not neglect the chance offered by research on rabies to help dogs and other animals?

MORE SILLY NAMES FOR PENICILLIN PRODUCTS

In February 1946 THE JOURNAL called attention editorially to a great variety of names for penicillin that had been introduced by manufacturers and purveyors. So many names had been offered that they seemed designed to conceal rather than reveal the nature of the product. Now come other titles that fail to indicate the nature of the product but which suggest the section of the body, or the animal, at which they are aimed, or that are otherwise as ridiculous. Here are a few samples from recent lists:

Buffecillin (Pfizer)
Crysticillin (Squibb)
Dairycillin (Schenley)
Duracillin (Lilly)
Flo-Cillin (Bristol Laboratories)
Gelu-Cillin (Warner)
Hypercillin (Cutter)
Intracillin (Warner)
Par-Pen (Smith, Kline & French)
Pecticillin (Pfizer)
Pelvicin (Schenley)
Pen-Troche (Cutter)
P. O. B. (Cutter)
Poultrycillin (Schenley)
Powdalator (Abbott)
Wycillin (Wyeth)
Capicillin (Barron Chemical Corp.)
Denticillin (Marlo Laboratories)
Nasocillin (Mol-La Laboratories)
Ophtocillin (Marlo Laboratories)
Rectocillin (Mol-La Laboratories)
Salvaciliin (Barron Chemical Corp.)
Tablicillin (Barron Chemical Corp.)
Trochicillin (Marlo Laboratories)
Vagicillin (Marlo Laboratories)

To select a rose from such a garden would require a botanist with more basic knowledge of the naming of plants than most physicians possess. Perhaps the blue ribbon should go to either "Poultrycillin" or Vagicillin." Perhaps the next step will be numbers to correspond with certain entrances or exits of the human body; we may be talking about "cillin no. 1" for the front and "cillin no. 2" for the rear. In a previous editorial attention was called to the combination of the manufacturer's name with "cillin." Since there were almost thirty manufacturers, that offered almost thirty possibilities. Now the emphasis seems to be inclining toward the port of entry plus "cillin." The Council on Pharmacy and Chemistry in recent years has tried to be more than reasonable about the acceptance of fanciful names for widely used products of varying manufacture. Even the patience of the proverbial Job would be tried by contemplation of a list such as is here cited. In the previous editorial the editor offered 8 to 5 that doctors would not guess the nature of a product called "Penioral." The odds are improving. We now offer 5 to 1 on "P. O. B."

Current Comment

SCHOOL HEALTH COMMITTEES

Every school, regardless of size or location, has numerous health problems which it must solve to the satisfaction of its local community. Teachers must realize the health status of the children in order to fit the educational program to the individual child's needs and capabilities. Teachers of physical education must know which children have cardiac lesions, hernias and recurrently dislocating joints if exercise is to be safely used. Medical examination obviously must be provided for all school children--but how, at what frequency and by whom?

School authorities are obviously in need of carefully considered medical advice; where shall they obtain it? The report of the recent Conference on the Cooperation of the Physician in the School Health and Physical Education Program[1] suggests that each local medical society appoint a School Health Committee to represent its membership in working with the local school authorities. A generally acceptable four point school health

2. Johnson, H. N.: Fox Rabies, J. M. A. Alabama **14**: 268 (May) 1945.

3. Control of Rabies: Report by the Committee on Public Health Relations of the New York Academy of Medicine, Pub. Health Rep. **62**: 1215 (Aug. 22) 1947. Control of Rabies, editorial, J. A. M. A. **135**: 161 (Sept. 20) 1947.

1. Physicians and Schools, Chicago, American Medical Association, 1948.

program including health service, health instruction, healthful school living and the health aspects of physical education has been developed through the combined efforts of forty-five health and educational organizations.[2] School administrators have expressed themselves as in general agreement with the purposes of their program.[3] Apparently the schools are entering a period of rapid development of their health programs. As this development takes place, local medical societies must be prepared to provide through their School Health Committees the consultation and advice that will be requested.

ALLERGIC CARDITIS

In 1932 Vaubel[1] and Kling[2] reported that in rabbits subjected to sublethal anaphylactic shock there develop cardiac lesions resembling those seen in human, rheumatic fever. This observation was afterward confirmed by Hall and Anderson[3] Rich and Gregory[4] and others, who formulated the theory that rheumatic fever is a reaction to parenteral contact with foreign protein to which tissues previously had been sensitized. This theory has been further supported by Moore[5] and his associates of the University of Southern California, who report the production of "rheumatic-like carditis" in mice subjected to repeated injection with egg albumin. In a typical experiment young mice received three intraperitoneal injections of dilute egg white at two day intervals, followed from four to twenty-one days later by a fourth injection of a smaller dose given intravenously. The surviving animals were held for seven days, then killed and their hearts fixed in solution of formaldehyde. Serial sections of these surviving hearts showed numerous rheumatic-like lesions, such as focal areas of acute vascular and perivascular degeneration, complete fibroid degenerations of arteriolar walls, hydropic degeneration and disruption of myocardial fibrils, perivascular cellular infiltrations and frequent verrucous lesions of the mitral surfaces with an occasional pathologic fusion of the aortic cusps. There was no apparent relation between the severity of clinical anaphylaxis and the extent or severity of these cardiac lesions. The allergic cardiac lesions thus bear a striking resemblance to the lesions that occur in acute human rheumatic carditis. Work of Moore and associates thus supports the theory that the human rheumatic heart is a result of parenteral contact with foreign proteins to which the cardiac tissues have been previously sensitized. They believe that this is compatible with the known relation of the streptococcus to rheumatic carditis, since it would be difficult to find a better source of foreign (or denatured) protein than the streptococcus frequently or intermittently gaining admission to the cardiac tissues.

2. Suggested School Health Policies, Chicago, American Medical Association, 1948.
3. Health in Schools, Washington, D.C., American Association of School Administrators, National Education Association, 1942.
1. Vaubel, E.: Beitr. z. path. Anat. u. z. allg. Path. 89: 374, 1932.
2. Kling, F.: Ergebn. d. allg. Path. u. path. Anat. 27: 1, 1933.
3. Hall, E. M., and Anderson, L.: Am. Heart J. 25: 64, 1943.
4. Rich, A. R., and Gregory, J. E.: Bull. Johns Hopkins Hosp. 73: 239, 1943; ibid. 75: 115, 1944.
5. Moore, F. J.; Ridge, G. K.: Huntington, R. W.; Hall, E. M.; Griffith, G. C., and Knowles, R. G.: Proc. Soc. Exper. Biol & Med. 65: 102, 1947.

ACUTE POTASSIUM DEFICIENCY IN DIABETIC ACIDOSIS

Several recent clinical studies[1] have demonstrated that diabetic acidosis, particularly after insulin therapy, may be complicated by an acute potassium deficiency. The evidence for such a significant conclusion is the consistent observation of a low serum potassium concentration in this condition and a favorable, almost dramatic, response of the acidotic patients to administered potassium chloride. Further supporting evidence is found in the general symptoms shown by the patients, such as paralysis of voluntary muscles, respiratory distress and electrocardographic abnormalities. These symptoms have been observed also in chronic potassium deficiency in experimental animals.[2] The prompt and decided improvement of the insulin-treated patient given potassium therapy has led one group of investigators[1c] to note that " the changes (respiratory distress, altered electrocardiogram, 'shock,' etc.) are due not to a low blood sugar level, as has sometimes been assumed, but to a shift of potassium from extracellular to intracellular space...". The fundamental reason for and acute potassium deficiency in diabetic acidosis is not completly understood, but a number of suggestions have been made.[1] One view is that a renal loss of potassium associated with the diuresis, particularly after insulin is administered, is a primary contributory factor to the acute depletion of potassium. Such a conception is perhaps supported by the observa-

1. (a) Holler, J.W.: Potassium Deficiency Occurring During Treatment of Diabetic Acidosis, J.A.M.A. 131: 1186 (Aug. 10) 1946. (b) Nicholson, W.M., and Branning, W.S.: Potassium Deficiency in Diabetic Acidosis, 134: 1292 (Aug. 16) 1947. (c) Frenkel, M.; Groen, J., and Willebrands, A. F.: , Low Serum Potassium Level During Recovery From Diabetic Coma, Arch. Int. Med. 80; 728 (Dec.) 1947.
2. Ruegamer, W. R.; Elvehjem, C. A.; and Hart, E. B.: Proc. Soc. Exper. Biol. & Med., 61; 234, 1946.

tion of a potassium deficiency in chronic nephritis[3] as indicated by a low serum potassium values, flaccid paralysis, abnormal electrocardiograms and a prompt response to potassium chloride therapy. Another view is that there is a shift of potassium from the extracellular to intracellular fluid, a view which receives some support from a current critical study[4] of exchanges of potassium and sodium in patients with various conditions, including familial periodic paralysis, a condition also characterized by aberrations in the metabolic disposition of potassium. The Yale investigators reached the general conclusion that in experimental and clinical conditions in which there is dehydration, as may occur in diabetic acidosis and chronic nephritis, there is usually a transfer of potassium from the extracellelar to intracellular fluids to replace losses in the latter as a result of renal excretion or lossibly for other reasons. Such a concept would appear to explain satisfactorily the low serum potassium values and consequent physical symptoms seen in some cases of diabetic acidosis, chronic nephritis and familial periodic paralysis. The general concept that human deficiency diseases may sometimes be endogenous in origin rather than due to the classical exogenous or dietary lack of essential substances is emphasized by the foregoing studies.

CORRECTIVE TRAINING OF COLOR BLINDNESS

Farnsworth[1] has estimated that there are 6,000,000 men in the United States partially or completely color blind, many engaged in transportation, the arts and crafts of interior decorating, printing, painting, textiles and color reproduction. The benefit to these men if it were possible to remedy or mitigate their deficiencies in detecting colors would be incalculable. The business of controlling color blindness, or rather of "coaching" men to pass tests, assumed considerable proportions during World War II. The methods practiced included repeated observation of bright colors; subcutaneous injection of iodine; electrical stimulation of the eyeball; warming of one eye; making of color judgments; observation of red and green lights; viewing dazzling lights of various colors; dosage with extremely large quantities of vitamins, chiefly various preparations of vitamin A with stress on emulsification; injection of cobra venom; repeated coaching on pseudoisochromatic plates or other color blindness tests; continuous wearing of glasses tinted with the color of the presumed deficiency. The National Bureau of Standards, U. S. Department of Commerce, reports that what actually happens when a person with anomalous vision receives training of various kinds is progressive familiarization with the particular type of pseudoisochromatic chart used to gage his progress. Repeated efforts to read the charts create the opportunity for practice and cut down the time required. Red-green deficiency is fairly prevalent among healthy men; about 8 per cent have this defect from birth to an important degree. A red-green confuser may fail to notice the color of a red signal or from a distance may be unable to tell forest land from plowed land. The lives of a whole crew of a bomber or submarine may be the price to pay for the delusion of one crew member that his color vision is normal just because he took treatments and learned to pass a color vision test. The Inter-Society Color Council Subcommittee in its report to the American Medical Association states that reliable scientific evidence indicates that the majority of persons with deviation from normal color vision possess some congenital retinal or neural defect which neither diet nor drugs, nor training in perceptual discrimination, can remedy. No crucial role in passing the tests in current use is played either by facility in the use of color names or by degree of familiarity with the various color tones, both stressed by the "corrective" color trainers. Prolonged study of the color charts of the test, however, enables the applicant to memorize digit series, familiarize himself with certain clues and tricks of composition or utilize certain aids in viewing. Thus, without materially improving his general color ability he may pass the qualifying test on retrials. In the interest, therefore, both of society and of the individual, a false rating of whose abilities can in the end work only injury to his prospects, the council condemns any training systems of the color blind which claim to be corrective. The Association of Schools and Colleges of Optometry in a resolution passed June 22, 1947 likewise condemned so-called "corrective training of color vision defects." Farnsworth emphasized that the experimental data on the subject lead to the conclusion that the basic psychophysiologic functions, as indicated by luminosity curves, color mixture ratios and other stimulus data by which normal or defective color vision is described, are unaffected by medicine, training or other therapy. The consensus, therefore, among the best informed and most experienced specialists in the field of color vision is that congenital color deficiency cannot be remedied by the use of diet, medicine, training or any other treatment known to science.

3. Brown, M. R.; Currens, J. H., and Marchand, J. F.: Muscular Paralysis and Electrocardiographic Abnormalities Resulting From Potassium Loss in Chronic Nephritis, J. A. M. A., 124; 545 (Feb. 26.) 1944.

4. Elkinton, J. R.; Winkler, A. W.; and Danowski, T.S.: J. Clin. Investigation 27; 74, 1948.

1. Farnsworth,: Investigation on Corrective Training of Color Blindness. Sight-Saving Review 17: 194, 1947.

ORGANIZATION SECTION

PROCEEDINGS OF THE CHICAGO SESSION

MINUTES OF THE ANNUAL SESSION OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION, HELD IN CHICAGO, JUNE 21-25, 1948

HOUSE OF DELEGATES

Thursday Afternoon—Continued

ELECTION OF OFFICERS

Report of Reference Committee on Rules and Order of Business

Dr. H. P. Ramsey, Chairman, presented the following report:

This is nearly all a repetition of what was said to the House yesterday in response to an inquiry. I direct your attention again to your Handbook, pages 38, 39 and 40, covering conduct of the elections. On page 40, item 8 reads "Roll Call for Casting Ballots." At that time, all three ballots are to be cast. Now, if you will turn back to page 38, "Election of Officers," you will find thereafter certain references to white, blue and yellow ballots, specimens of which are here.

The Secretary will place the blackboard in the center where nominations as made may be recorded in your full view. At the conclusion of the nominations for each office the Speaker will so declare. At the conclusion of all of the nominations or items for the white ballot, the Speaker will declare that nominations have been made for all of the offices on the white ballot.

The same procedure will be followed in respect to the blue ballot and to the yellow ballot, all of which will be cast at the same time, at the time of a roll call of the House. You will observe that a ballot box with a glass front has been mounted on the far side of the auditorium and that, as you pass to drop your ballots, you will fold them letterwise and deposit each ballot separately so that the tellers in attendance may note that you have dropped one of each color.

Furthermore, there will be no blackboard tally. The Chair has been requested to augment the Tellers' Committee by six. There are now three, and that will make nine. The Tellers' Committee will subdivide itself into three subcommittees one subcommittee for each color ballot, to expedite the work of counting the ballots. When they are through, the Speaker will call for their report.

Dr. E. Vincent Askey, California, stated that there is one clarification which might be made, that is that if there are three or more nominations for any office, the By-Laws state that the lowest man shall drop out and another ballot be cast until a majority is won; that unless that is understood it is quite possible that there may be three men voted on and then the final vote which would have to be taken might result in half of the delegates having gone, thinking they had cast their ballot, and that it is important that it is understood that the ballot and voting is not final until the result of the Tellers' count is in because another ballot might be necessary.

Dr. Ramsey added that Dr. Askey was correct; that yesterday he had stated that in case of any run-off ballots, plain pieces of paper would be distributed by the Secretary for any such possible run-off ballots, and that a copy of each of the three ballot sheets would be distributed at the same time.

The Speaker appointed the following extra tellers as suggested by the committee: To assist Dr. Green, Chairman of the Tellers, Dr. James Q. Graves, Louisiana, and Dr. Gerald V. Caughlan, Iowa; to assist Dr. Samuel, another member of the Tellers' Committee, Dr. Clark Bailey, Kentucky, and Dr. E. P. McNamee, Ohio, and to assist Dr. Smith, the other Teller, Dr. A. S. Giordano, Indiana, and Dr. George A. Unfug, Colorado. The Speaker requested all voting delegates to move into the section reserved for voting delegates in order to facilitate matters in passing and collecting ballots, and further requested all others to take seats in the back of the hall, after which the ballots were distributed, a white, a blue and a yellow ballot being given each voting member of the House.

Dr. H. P. Ramsey, Chairman of the Reference Committee on Rules and Order of Business, stated that if there should be only one nominee it is possible or desirable that the nominee be elected by acclamation without the necessity for a teller count.

Nominations for President-Elect

Dr. Charles H. Phifer, Illinois, nominated for President-Elect Dr. Ernest E. Irons, Chicago, and the nomination was seconded by delegates from Alabama, Illinois, Tennessee, Mississippi, Iowa, Pennsylvania, Georgia, New Jersey, South Carolina and others.

Dr. W. A. Coventry, Minnesota, nominated for President-Elect Dr. A. W. Adson, Rochester, Minn., and the nomination was seconded by delegates from Wisconsin, the Section on Nervous and Mental Diseases, California, the Section on Laryngology, Otology and Rhinology, South Dakota, Illinois, Ohio, Oklahoma, Colorado, New Jersey, Michigan, South Dakota and others.

On motion of Dr. A. A. Walker, Alabama, seconded by several and carried, nominations for President-Elect were closed.

Nomination for Vice President

The Vice Speaker presided.

Dr. K. S. J. Hohlen, Nebraska, nominated Dr. Roy W. Fouts, Omaha, as Vice President, and the nomination was seconded by delegates from practically every state. Dr. Arthur J. Bedell, Section on Ophthalmology, moved that the nominations be closed, and the motion was seconded and carried.

On motion of Dr. Lowell S. Goin, California, seconded by Dr. James C. Sargent, Wisconsin, and carried, the Secretary cast the ballot of the House for Dr. Roy W. Fouts as Vice President, and the Vice Speaker declared Dr. Fouts duly elected to that office for one year.

Nomination for Secretary

The Speaker resumed the Chair.

Dr. A. A. Walker, Alabama, nominated Dr. George F. Lull, Chicago, as Secretary, and the nomination was seconded by delegates from practically every state.

On motion of Dr. William Weston, Section on Pediatrics, seconded by Dr. Mather Pfeiffenberger, Illinois, and carried, nominations for Secretary were closed.

It was moved by Dr. James C. Sargent, Wisconsin, seconded by Dr. Robert H. Hayes, Illinois, and carried, that Dr. F. F. Borzell, Vice Speaker, cast the ballot of the House for Dr. Lull as Secretary.

The Vice Speaker cast the ballot of the House for Dr. George F. Lull, Chicago, to serve as Secretary for a term of one year.

Nomination for Treasurer

Dr. E. L. Henderson, Chairman, Board of Trustees, nominated for Treasurer Dr. J. J. Moore, Chicago, and the nomination was seconded by many. Dr. Robert H. Hayes, Illinois, moved that nominations be closed, and the motion was seconded and carried.

The Secretary cast the vote of the House for Dr. J. J. Moore, Chicago, as Treasurer for one year, on motion of Dr. Mather Pfeiffenberger, Illinois, seconded by Dr. Robert H. Hayes, Illinois, and carried.

Nomination for Speaker of House of Delegates

Dr. W. L. Estes Jr., Pennsylvania, nominated for Speaker of the House of Delegates Dr. F. F. Borzell, Philadelphia, and the nomination was generally seconded. It was moved by Dr. Val H. Fuchs, Louisiana, seconded by Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, and carried, that nominations be closed.

On motion of Dr. B. R. Kirklin, Section on Radiology, seconded by several and carried, the Speaker cast the ballot of the House for Dr. F. F. Borzell, Philadelphia, as Speaker of the House of Delegates for one year.

Nominations for Vice Speaker of House of Delegates

Dr. Thomas P. Murdock, Connecticut, nominated for Vice Speaker of the House of Delegates Dr. Creighton Barker, New Haven, Conn., and many seconded the nomination.

Dr. John J. Masterson, New York, nominated for Vice Speaker Dr. James R. Reuling, Bayside, N. Y.

Dr. H. B. Everett, Tennessee, moved that nominations be closed and the motion was seconded by several and carried.

The Speaker declared that this completed the nominations for the offices on the white ballot and that it would be necessary to vote only for the President-Elect and the Vice Speaker of the House of Delegates.

Nominations for Trustee to Succeed Dr. William F. Braasch

Dr. Walter F. Donaldson, Pennsylvania, nominated Dr. Louis A. Buie, Rochester, Minn., to succeed Dr. William F. Braasch, Rochester, Minn., as Trustee, and the nomination was seconded by several.

Dr. Robert E. Schlueter, Missouri, nominated Dr. James R. McVay, Kansas City, Mo., for that office.

Dr. James C. Sargent, Wisconsin, nominated Dr. Gunnar Gundersen, La Crosse, Wis., for that office, and the nomination was duly seconded.

Dr. Arthur J. Bedell, Section on Ophthalmology, moved, and Dr. H. B. Everett, Tennessee, seconded the motion, which was carried, that the nominations be closed.

Nominations for Trustee to Succeed Dr. Ernest E. Irons

Dr. Mather Pfeiffenberger, Illinois, nominated Dr. Edwin S. Hamilton, Kankakee, Ill., to succeed Dr. Ernest E. Irons as Trustee, and the nomination was seconded by several.

Dr. R. K. Packard, Illinois, nominated Dr. Warren W. Furey, Chicago, for that office and that nomination was seconded by several.

On motion of Dr. Robert H. Hayes, Illinois, seconded by Dr. G. Henry Mundt, Illinois, and carried nominations for Trustee to succeed Dr. Ernest E. Irons were closed.

Trustee to Succeed Dr. Wingate Johnson, Winston-Salem, N. C., Who Was Appointed to Serve Until this Session for Dr. C. W. Roberts, Atlanta, Ga., Deceased

Dr. J. Morrison, Hutcheson, Va., nominated Dr. Walter B. Martin, Norfolk, Va., to complete the unexpired term of Dr. C. W. Roberts, deceased and the nomination was severally seconded.

Dr. Charles F. Strosnider, North Carolina, nominated Dr. Wingate Johnson, Winston-Salem, N. C., for that office.

Dr. William Weston, Section on Pediatrics, moved that nominations be closed, and the motion was seconded by several and carried.

Several delegates requested permission to deposit their ballots immediately as they were forced to leave. On motion, duly made, seconded and carried the following named delegates were granted such permission: Dr. Lowell S. Goin, California; Drs. J. Stanley Kenney, Thomas M. Brennan, A. A. Gartner, P. J. Di Nitale and Scott Lord Smith, New York; Dr. Hilton S. Read, New Jersey; Dr. G. S. Klump, Pennsylvania; Drs. F. M. Wiseley, L. Howard Schriver and E. P. McNamee, Ohio, and Dr. E. L. Compere, Section on Orthopedic Surgery.

On motion of Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. Mather Pfeiffenberger, Illinois, and carried, the list was closed.

Place of Annual Session in 1951

Dr. E. L. Henderson, Chairman, Board of Trustees, reported as follows: Atlantic City has been chosen for the 1949 Annual Session and San Francisco for the 1950 Annual Session. Invitations have been received from Atlantic City and Chicago to hold the annual session in 1951 in those cities, and both cities have the facilities for holding a session.

The Speaker announced that this concluded the nominations for the blue ballot.

Nominations for Standing Committees by the President

Nominations for Members of Judicial Council

Dr. R. L. Sensenich, President, nominated as members of the Judicial Council; Dr. John H. O'Shea, Spokane, Wash., to succeed himself, and Dr. Homer L. Pearson Jr., Miami, Fla., to fill the unexpired term of Dr. Lloyd Noland, resigned.

Nomination for Member of Council on Scientific Assembly

Dr. Sensenich nominated Dr. Alphonse McMahon, St. Louis, to succeed Dr. L. B. Jackson, San Antonio, Texas, as a member of the Council on Scientific Assembly.

It was moved by Dr. A. A. Walker, Alabama, seconded by Dr. James C. Sargent, Wisconsin, and carried, that the House confirm the nominations made by the President and the Speaker declared Dr. John H. O'Shea, Dr. Homer L. Pearson Jr., and Dr. Alphonse McMahon duly elected to the offices indicated by the President.

Nominations for Standing Committees by Board of Trustees

Nominations for Council on Medical Education and Hospitals

Dr. E. L. Henderson, Chairman, Board of Trustees, stated that it is customary to submit two names for each vacancy on the Council on Medical Education and Hospitals, and, therefore, the Board nominates to succeed Dr. John H. Musser, deceased, whose place in the interim had been filled by Dr. Virgil P. Sydenstricker, Augusta, Ga., Dr. William L. Pressly, Due West, S. C., and Dr. Carl A. Grote, Huntsville, Ala., in compliance with the amended By-Law passed by the House.

Dr. E. L. Henderson, Chairman, Board of Trustees, nominated, for the member of the Council on Medical Education and Hospitals to succeed Dr. Harvey B. Stone, Baltimore, Dr. Harvey B. Stone, Baltimore, and Dr. L. T. Coggeshall, Chicago.

Nominations for Council on Medical Service

Dr. E. L. Henderson, Chairman, Board of Trustees, presented, as is customary, three names in nomination for each vacancy on the Council on Medical Service. The following were nominated to succeed Dr. Walter B. Martin, Norfolk, Va.: Dr. Henry B. Mulholland, Charlottesville, Va.; Dr. Julian Price, Florence, S. C., Dr. W. R. Brooksher, Fort Smith, Ark.

Dr. Henderson presented the following nominations for member of the Council on Medical Service to succeed Dr. A. W. Adson, Rochester, Minn., Dr. Joseph D. McCarthy, Omaha; Dr. James Stevenson, Tulsa, Okla., and Dr. Thomas F. Thornton, Waterloo, Iowa.

Roll Call for Balloting

The Secretary called the roll and each delegate as his name was called answered the roll and deposited his three ballots in the ballot box, after which the tellers proceeded to count.

Election of Affiliate Fellows

PHYSICIANS FROM ADJACENT COUNTRY

The Secretary presented the nominations, approved by the Judicial Council, of Dr. John McMillan, Montreal, Canada, and Dr. H. V. Dobson, Peterborough, Ontario, Canada, for Affiliate Fellowship. The nominations were seconded by Dr. Arthur J. Bedell, Section on Ophthalmology and carried.

AMERICAN MEDICAL MISSIONARIES

The Secretary presented nominations approved by the Judicial Council for Affiliate Fellowship of the following named medical missionaries:

Aldrich, Herschel C., Nadiad, India.
Brewster, Harold N., Foochow, China.
Carlson, Emery W., Kunming, Yunnan, China.
Christensen, Aage J., Robertsport, Liberia, West Africa.
Dick, Willis G., Mukden, Manchuria, China.
Fischer, Viola I., Shanghai, China.
Fisher, Kenneth B., Loma Linda, Calif.
Hestenes, Erling G., St. Paul, Minn.
Innocent, George C., Singapore.
Lefforge, E. Everett, Sierra Leone, W. Africa.
Ross, J. Hervey, Morelia Michoacan, Mexico.
Schilt, Clarence H., Bagdad, Iraq.
Wagner, William, Portland, Ore.

NOMINATED BY SECTIONS

On motions duly made, seconded and carried, the following nominees for Affiliate Fellowship approved by the Sections indicated were elected:

SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY

Holtman, David Eugene, Boyceville, Wis.
Koenig, Oscar, Glendale, Calif.

SECTION ON PATHOLOGY AND PHYSIOLOGY

Glaser, Robert J., St. Louis.

SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

Hein, Fred V., Chicago.

Election of Associate Fellows

On motion of Dr. H. B. Everett, Tennessee, seconded by Dr. B. H. Minchew, Georgia, and carried, the following named physicians, approved by the Council on Scientific Assembly, were elected Associate Fellows:

ALABAMA

Compton, Wheeler W., Black Mountain, N. C.
Hill, Hugh W., Carrollton.

ARKANSAS

Caldwell, Robert, Little Rock.

CALIFORNIA

Allen, Herbert W., San Francisco.
Berauer, Joseph M., Hollywood.
Bramkamp, Allan L., Banning.
Broughton, G. A., Ventura.
Brown, Walter H., San Francisco.
Brunn, Harold, San Francisco.
Burlew, J. M., Santa Ana.
Decker, C. W., Pomona.
Hopkins, Mark F., San Jose.
Huff, Lucius J., Hollywood.
Kress, George H., Los Angeles.
Kuhn, Orta E., Moorpark.
Lefler, Anna B., Los Angeles.
Lemere, Henry B., Beverly Hills.
MacFarlane, Arthur H., Mountain View
Maclennan, A. L., Pasadena.
Moulton, D. H., Chico.
Parker, Carl H., Altadena.
Ransom, J. K., Modesto.
Reed, Edward N., Santa Monica.
Seymour, Eleanor C., Los Angeles.
Shryock, Alfred, Loma Linda.
Tillmanns, Carl S. J., Los Angeles.

COLORADO

Noonan, George M., Denver.
Robinovitch, Louise G., Englewood, N. J.

CONNECTICUT

Taylor, J. C., New London.

ILLINOIS

Adams, A. L., Jacksonville.
Albrecht, Charles A., Chicago.
Abt, Isaac, Chicago.
Andelson, David, Chicago.
Bachelle, C. V., Chicago.
Baker, Henry Lester, Chicago.
Barothy, A. M., Chicago.
Baxter, George E., Glendora, Calif.
Blackstone, G. R., Urbana.
Bothwell, Roy S., Batavia.
Bourland, Robert C., Rockford.
Boynton, Charles O., Sparta.
Brown, J. Archibald, Kankakee.
Cappa, J. A., Chicago.
Carr, James G., Evanston.
Carriel, H. B., Elgin.
Carter, Charles W., Winter Park, Fla.
Catlin, S. R., Rockford.
Cheney, H. W., Florence, Ala.
Clements, Robert, Danville.
Cooper, Rachel M., Normal.
Cubbins, Wm. R., Dundee.
Dahlberg, Andrew V., Chicago.
Darling, Ulysses G., Chicago.
Day, James A., Springfield.
Dennison, A. E., Chicago.
Diamond, I. B., Chicago.
Ehrmann, Fred J. E., La Grange.
Ferguson, Clara, Gibson Island, Md.
Findlay, E. K., Chicago.
Fleming, James L., Chicago.
Gale, F. C., Pekin.
Geen, James S., Utica.
Gentles, Harry W., Chicago.
Harmison, F. B., Chicago.

ILLINOIS—Continued

Harvey, Andrew M., Long Beach, Calif.
Harvey, James A., Pasadena, Calif.
Hawks, J. K. P., Bloomington.
Hedges, A. P., Chicago.
Hektoen, Ludvig, Chicago.
Heldring-Fabricius, L. J., DeLand, Fla.
Hill, H. C., Streator.
Hutchins, Linda K., Freeport.
Ikemire, John A., Palestine.
Jack, John B., Brock, Neb.
Jacobs, Charles M., Winnetka.
Kerr, Ellis K., Oak Park.
Knapp, Afred A., Peoria.
Latham, V. A., Chicago.
Lieberthal, David, Chicago.
Lofgren, Emil, Rockford.
Mahoney, G. W., Chicago.
Martin, Albert R., Chicago.
Masilko, V. F., River Forest.
McGaughey, R. S., Danville.
McLean, Wm. T., Marca.
Meling, N. C., Evanston.
Michael, Oscar W., Muncie.
Middleton, Alonzo B., Clermont, Fla.
Miner, Elizabeth R., Macomb.
Motter, Thomas I., Oak Park.
Mueller, George, Chicago.
Ochsner, E. E., Rockford.
Parker, Rupert M., Chicago.
Pollock, M. D., Decatur.
Preble, Robert B., Chicago.
Prendergast, Joseph, Oak Park.
Pusey, Brown, Golf.
Rhodes, O. M., Bloomington.
Roark, J. P., Bushnell.
Roberts, A. J., Ottawa.
Schmidt, Herman, Okawville.
Schram, A. W., Chicago.
Simpson, Frank E., Chicago.
Steele, W. A., Havana.
Stewart, Allan E., West Palm Beach, Fa.
Stoops, Perry H., Ipava.
Swift, A. W., Belvidere.
Twitchell, B. E., Belleville.
VanBenschoten, Wm. C., Chicago.
VanHoosen, Bertha, Chicago.
Waterman, Samuel A., Miami, Fla.
Weld, Anna, Rockford.
Welfeld, Joseph, Chicago.
Wellenreiter, O. F., Danville.
Wheeler, Ralph H., Chicago.
White, Marion L., Dixon.
Wilkinson, C. E., Danville.
Wood, Wilbur C., Decatur.
Wright, Charles E., Rockford.

INDIANA

Ames, George F., Eaton.
Austin, F. H., Bloomington.
Ball, Thomas Z., Crawfordsville.
Barnard, Pliny C., Parker.
Boren, Samuel W., Poseyville.
Braginton, Fred, Hammond.
Brown, Edward A., Indianapolis.
Buxton, Eva J., Rockport.
Cramp, Arthur J., Hendersonville, N. C.
Crampton, Chas. C., Delphi.
Dando, George H., Hartford City.
Dewey, Geo. W., Lafayette.
DuBois, Frank, Liberty.
Duncan, William F., Aurora.
Emery, Charles H., Bedford.
Eshleman, L. H., Marion.
Gillespie, J. F., Greencastle.
Giorgi, Antonio, Gary.
Gordin, Stanton E., Connersville.
Harold, Norris E., Indianapolis.
Holloway, W. A., Logansport.
Hoppenrath, W. H., Elwood.
Hughes, W. F., Indianapolis.
Johnson, G. C., Evansville.
Kamman, G. H., Seymour.
Keeling, James E., Waldron.
Kennedy, Samuel, Shelbyville.
Lane, W. H., Angola.
Lauer, A. J., Whiting.
McCool, W. E., Evansville.
McCulloch, C. B., Indianapolis.
Molloy, Wm. J., Muncie.
Morrison, John S., Lafayette.
Mull, P. L., Louisville, Ky.
Myers, Burton D., Bloomington.
Neier, O. C., Indianapolis.
Niblack, E. S., Terre Haute.
Noble, Thomas B., Indianapolis.
Pfafflin, Chas. A., Indianapolis.
Price, Willard A., Nappanee.
Quickel, D. S., Anderson.
Ranke, W. Henry, Ft. Wayne.
Ravdin, Marcus, Evansville.
Rice, T. R., Petersburg.
Schaefer, C. Richard, Indianapolis.
Schick, M. F., Ft. Wayne.
Schlicker, A. G., East Chicago.
Schweitzer, Ada E., Indianapolis.
Shacklett, Henry B., New Albany.
Sims, Stephen B., Frankfort.
Smith, Rodney D., Bloomington.
Stemm, W. H., No. Vernon.
Swarts, Willard W., Three Rivers, Mich.
Tindal, E. F., Muncie.
Titus, Charles, Wilkinson.
Voyles, Charles F., Indianapolis.
Wheeler, John T., Indianapolis.
White, William J., Gary.
Whitsitt, Schuyler A., Madison.
Wiedemann, Frank E., Terre Haute.
Wyeth, Charles, Ft. Lauderdale, Fla.

IOWA

VanderVeer, F. L. Janesville.

LOUISIANA

Hunter, W. B., Coushatta.
Jauquet, Clotilde C., New Orleans.

MAINE

Hayden, Louis B., Livermore Falls.

MARYLAND

Boyer, George M., Mt. Airy, Damascus.
Chapman, Ross McC., Towson.
Dickerson, John D., Stockton.
Fisher, W. A., Baltimore.
Miller, Sydney R., Baltimore.
O'Neil, F. P., Plainview, Tex.

MASSACHUSETTS

Bancroft, Edward E., Boston.
Carney, Patrick J., Worcester.
Champion, Merrill E., Boston.
Cole, Arthur J., Holbrook.
Cook, Philip H., Worcester.
Gagne, J. A., Chicopee Falls.
Knudson, M. M., West Roxbury.
MacLean, Donald J., Palmer.
Marsh, Arthur W., Worcester.
McCrudden, Francis H., West Newton.
Ruble, Wells A., Glendale, Calif.
Page, Calvin G., Boston.
Senesac, A. N., New Bedford.
Smyth, Henry F., Pocosset.
Sternberg, J. Edward, Wollaston.
Young, Walter H., Dedham.

MICHIGAN

Swift, Earle R., Lakeview.

MINNESOTA

Bertleson, O. L., Crookston.
Ide, Arthur W., St. Paul.
Williams, R. V., Rushford.

MISSOURI

Bailey, Fred W., St. Louis.
Banshach, Joseph J., St. Joseph.
Bauman, L. C., St. Joseph.
Blair, V. P., St. Louis.
Bradley, John M., St. Louis.
Burford, C. E., St. Louis.
Callaway, L. M., Kansas City.
Coil, Paul E., Mexico.
Cunningham, Harvey L., Cape Girardeau.
DeVilbiss, E. F., Kansas City.
Dickson, F. D., Kansas City.
Edwards, Edwin D., St. Louis.
Gibson, E. T., Kansas City.
Hardin, Thomas L., St. Charles.
Hardy, W. F., St. Louis.
Logan, James A., Warsaw.
Neilson, Charles H., St. Louis.
Neuhoff, Fritz, St. Louis.
Pickens, E. E., Kansas City.
Rassieur, Louis, Kirkwood.
Schulz, G. B., Cape Girardeau.
Smith, Clinton K. Kansas City.
Spencer, Selden, St. Louis.
Stormont, R. M., Webb City.
Tate, P. S., Fulton.
Traubitz, Arnold, Leadwood.
Webster, R. W., Santa Cruz, Calif.
Weinsberg, Charles H., St. Louis.
West, William M., Monett.
Wills, W. J., Springfield.
Zimmerman, Carl A. W., Cape Girardeau.

NEBRASKA

Allen, John F., Van Nuys, Calif.
Haney, W. P., Omaha.
Hellwig, J. W., Omaha.
Shramek, Joseph M., LaCrosse, Wis.

NEW JERSEY

Bartlett, Clara K., Atlantic City.
Fitcroft, William, Waukesha, Wis.
Gille, Hugo, Jersey City.
Pyle, Wallace, Jersey City.
Rosecrans, James H., Hoboken.

NEW YORK

Charlton, Richard, Daytona Beach, Fla.
Clark, Raymond, Brooklyn.
Conway, John A., Hornell.
Coopernail, George P., St. Petersburg, Fla.
Dunning, Henry S., New Canaan, Conn.
Green, Nathan W., New Canaan, Conn.
Heller, Jacob, Brooklyn.
Hodge, W. H., Niagara Falls.
Hooker, H. Lyman, New York.
Keays, Frederick L., Great Neck.
King, David F., Laurelton, L. I.
Ludum, Walter Denton, Brooklyn.
Mayne, Earl H., Brooklyn.
Olin, Joseph D., Watertown.
Randel, William A., Coral Gables, Fla.
Rich, Charles, Yorktown Heights.
Schumer, Henry, New York.
Slavin, James S., Richmond Hill, L. I.
Sprague, W. G., Barker.
Stoddart, James, Buffalo.
Vaughan, Harold S., New York.
Wadsworth, Augustus, Albany.
Wallace, George B., New York.

OKLAHOMA

Anderson, Parkey H., Forsyth, Mo.
Barker, C. E., Oklahoma City.
Hill, C. B., Guthrie.
Loyd, E. M., Taloga.
Maginnes, P. H., Tulsa.
Templin, O. E., Alva.
Torrey, John P., Bartlesville.
Yeargan, W. M., Hollis.

PENNSYLVANIA

Eicher, Charles G., Ontario, Calif.
Hartman, Irvin H., Reading.
Ziegler, Charles E., Miami Shores, Fla.

TENNESSEE

Wilson, Owen H., Nashville.

TEXAS

Alexander, James M., Abilene.
Andrews, Judson M., Wharton.
Gentry, William H., Corpus Christi.
Tabor, Martin E., Dallas.
Taylor, Martin J., Houston.

VERMONT

Holcombe, Luman C., Milton.
Marvin, David, Essex Junction.

VIRGINIA

Harman, W. C., Dolphin.

WASHINGTON

Abrams, C. J., Spokane.
Abrams, W. E., Spokane.
Anderson, F. W., South Bend.
Banks, Rush, Centralia.
Bates, U. C., Seattle.
Booth, Fred'k. A., Pasadena, Calif.
Brown, Francis H., Seattle.
Calhoun, Grant, Seattle.
Canfield, Herbert H., Seattle.
Carroll, Frank M., Seattle.
Chase, E. F., Seattle.
Conway, C. E., Cashmere.
Crookall, A. C., Seattle.
Davis, George H., Kirkland.
Dudley, Homer D., Seattle.
Durand, J. I., Seattle.
Durrant, James A., Snohomish.
Ewing, D. Albert, Seattle.
Fursey, Frank R., Spokane.
Gates, I. N., Seattle.
Goodnow, L. L., Aberdeen.
Hagyard, C. E., Seattle.
Hall, David C., Seattle.
Hendricks, Ralph, Spokane.
Hillis, A. E., Tacoma.
Hood, Charles S., Ferndale.
Horsfall, Frank L., Seattle.
Houston, David H., Seattle.
Hutchinson, Joseph L., Seattle.
Irwin, Lilian C., Seattle.
Jones, Everett O., Seattle.
Kirkpatrick, W. D., Bellingham.
Kunz, Geo. G. R., Tacoma.
Lamson, O. F., Seattle.
Leuty, Joseph D., Farmington.
McClure, Charles E., Seattle.
McKinney, Mark W., Seattle.
Palmer, Don H., Seattle.
Penney, W. B., Tacoma.
Phelps, Frank W., Seattle.
Reger, E. L., Spokane.
Rhodehamel, Harry E., Spokane.
Rose, Frances E., Spokane.
Robertson, J. Benj., Tacoma.
Ruge, E. C., Long Beach, Calif.
Sayer, Joseph H., Seattle.
Schutt, John P., Bremerton.
Seaberg, Simon P., Spokane.
Shaw, Harry A., Seattle.
Shepard, Frank L., Winslow.
Silverberg, Carl W., Seattle.
Smith, Carroll L., Spokane.
Smith, Clarence A., Seattle.
Sutherland, James, Spokane.
Thompson, Nathan, Everett.
Veasey, Clarence A., Spokane.
Von Phul, P. V., Seattle.
Warhanik, Charles A., Seattle.
Welty, E. M., Spokane.
Winslow, K., Seattle.

WEST VIRGINIA

Fortney, Mary J. F., Uhrichsville, Ohio.
Johnson, Henry R., Fairmont.

WISCONSIN

Buchanan, Richard C., Green Bay.
Grosskopf, Ernest C., Waukesha.
Holbrook, Arthur T., Milwaukee.
McCracken, Richard W., Union Grove.
Ruethin, Knute A., Costa Mesa, Calif.

ADDENDA

NEW YORK

Brooks, Paul B., Altamont.
Cox, Gerard H., Saranac Lake.
Cox, Hugh M., New York.
Craw, Nelson A., Fairfield, Conn.
Davis, James C., Rochester.
DuBois, Francis E., Winter Park, Fla.
Dugan, John, Albion.
Foord, Andrew G., Kerhonkson.
Friedman, Louis A., New York.
Haynes, Royal S., New York.
Humphreys, George H., Jamaica.
Hutchinson, Abbott T., Coconut Grove, Fla.
Johnston, Arthur M., Utica.
Knight, Frank H., White Plains.
McClintock, Thomas H., Garden City, L. I.
Mesmer, John M., Buffalo.
Miller, F. M., Sr., Utica.
Mosser, Fred'k. L., New Rochelle.
Osgood, Alfred T., New York.
Page, Albert W., White Plains.
Rimer, Edward S., New York.
Santry, A. B., Little Falls.
Stein, Arthur, New York.
Turnure, Percy R., Northport.
Wakeman, Charles L., Hancock.
Ward, Ralph F., Briarcliff Manor.
Watson Cassius H., Brookfield Center, Conn.
Woodhouse, F. E., Elmira.

OREGON

Seeley, A. C., Roseburg.

Citation for Distinguished Lay Service

Dr. William Bates, Pennsylvania, moved that in the future the House consider nominations for receiving Citations for Distinguished Lay Service, after they have been received from the Board of Trustees, in Executive Session and act on them in Executive Session. The motion was seconded by several and carried.

Dates of 1949 and 1950 Sessions

Dr. E. L. Henderson, Chairman, Board of Trustees, announced that the 1949 Annual Session would be held in Atlantic City June 6 to 10; the 1950 Annual Session in San Francisco, June 26-30, and the 1949 Interim Session in St. Louis, Nov. 30 to Dec. 3. He added that Dr. David Allman would be the Chairman of the Local Committee on Arrangements for the Atlantic City session in 1949.

Retirement of Dr. Arthur J. Bedell

Dr. Edward P. Flood, New York, announced that Dr. Arthur J. Bedell, Section on Ophthalmology, a member of the House for thirty-three years, is retiring and that he was sure all would miss him.

Expressions of Appreciation

On motion of Dr. F. F. Borzell, Vice Speaker, seconded by Dr. H. B. Everett, Tennessee, and carried, a unanimous vote of thanks was tendered the Chicago Medical Society and the Illinois State Medical Society for their gracious functioning as hosts.

It was moved by Dr. Britton E. Pickett, Texas, seconded by Dr. H. P. Ramsey, District of Columbia, and carried by a rising vote, that the House extend its sincere thanks to Dr. R. W. Fouts for his long and faithful service as Speaker of the House.

Address of Dr. R. W. Fouts

The Vice Speaker presided while Dr. R. W. Fouts addressed the House as follows: Gentlemen, I must admit that it is with somewhat mingled emotion and feeling that I pass this gavel on to a man who I know is eminently qualified, but at the same time having in mind that after all these years I will miss it. If I have served you with satisfaction it has been because of the fine help that I have had and the generous cooperation from each and every delegate. I have done my best. You have seen fit to elect me to the Vice-Presidency, so farewell here does not necessarily mean finality. You will be seeing me. Thank you a lot.

On motion of Dr. B. H. Minchew, Georgia, seconded and carried, the House extended its thanks to the hospitality of

Chicago through the hotels, including the Palmer House, headquarters hotel for the House of Delegates, and the Chicago Hotel Association.

Election of President-Elect

The tellers announced that the total vote on the white ballot was 166. Dr. Ernest E. Irons, Chicago, received 91 votes for President-Elect and Dr. A. W. Adson, Rochester, Minn., received 75, and the Speaker declared Dr. Irons elected President-Elect for the ensuing year, having received a majority of the votes cast.

Election of Vice Speaker of House of Delegates

Of the 166 votes cast, Dr. James R. Reuling Jr., Bayside, N. Y., received 89 and Dr. Creighton Barker, New Haven, Conn., 77. The Speaker declared Dr. Reuling, having received the majority of the votes cast, elected Vice Speaker of the House of Delegates for the ensuing year.

On motion of Dr. Thomas P. Murdock, Connecticut, seconded by Dr. Creighton Barker, Connecticut, and carried, the vote for Dr. Reuling was made unanimous.

Dr. W. A. Coventry, Minnesota, moved that Dr. Ernest E. Irons be declared unanimously elected President-Elect, and the motion was seconded by Dr. J. B. Lukins, Kentucky, and carried, and the Speaker declared Dr. Irons so elected.

Presentation and Address of President-Elect Ernest E. Irons

Dr. Charles H. Phifer, Illinois, introduced the President-Elect, Dr. Ernest E. Irons, who addressed the House as follows:

Mr. Speaker, members of the House: Always, I suppose, to all persons who are so honored, the acknowledgment of an honor becomes a very difficult procedure.

I am impressed with the responsibilities which you have placed on me. Personally, I offer to the House my deepest thanks and gratitude for thus honoring me. I feel no elation. I should, I suppose, but any spark of elation is overcome by a sense of responsibility.

I have been preceded in office, for the last two or three years particularly, by men who have given yeoman service to medicine. We have before us a temporary cessation of the efforts to abridge the freedom of American medicine. We have won some preliminary skirmishes, but, make no mistake, we are not through with this fight. It is a fight that is much more than the fight for the freedom of American medicine. It is a fight for the preservation of American democracy and the American way of life. We have knowledge that there are other attacks in the offing, and I know that the Board of Trustees and your other officers are taking the necessary steps to combat them.

But the battle is going to come a little later, and as the termites that have been boring from within against our democratic way of life become a little more conscious of a losing battle, we shall find that the attacks will become a little more subtle, if that could be, and a little more vigorous.

The opportunity of this House is particularly great now, for you may be able and should be able to arouse in all county medical societies a will to get out and fight locally, and that has not been the case up to date. I say that not in criticism but merely as a statement of fact.

As we all go back to our daily routine, I hope that every one of us may begin, if he has not already begun, an effort to arouse the profession in the county societies and then at the state levels. If we do that, we have 130,000 doctors who can swing anything and bring the public to know the problems that they are facing and the efforts that they must make if they are to maintain their individual freedom and the American way of life.

Again, I thank you for this signal honor which I feel very deeply. I hope I have expressed in some small way my thanks to all of you.

Election of Members of Council on Medical Education and Hospitals

The tellers announced the following results of the vote for members of the Council on Medical Education and Hospitals: For the member to serve for seven years, Dr. Harvey B. Stone, Baltimore, received 134 votes and Dr. L. T. Coggeshall, Chicago, 16; for the member to serve for six years, Dr. William L. Pressly, Due West, S. C., received 126 votes and Dr. Carl A. Grote, Huntsville, Ala., 22. The Speaker declared Dr. Stone elected for a term of seven years and Dr. Pressly for a term of six years.

Election of Members of Council on Medical Service

The tellers announced the following results of the vote for members of the Council on Medical Service: In place of Dr. Walter B. Martin, Norfolk, Va., Dr. H. B. Mulholland, Charlottesville, Va., received 99 votes, Dr. William R. Brooksher, Fort Smith, Ark., 30, and Dr. Julian Price, Florence, S. C., 16. The Speaker declared Dr. Mulholland, having received the majority of the votes cast, a member of the Council on Medical Service.

The tellers announced the following results of the balloting for a member of the Council on Medical Service in place of Dr. A. W. Adson, Rochester, Minn.: Dr. James Stevenson, Tulsa, Okla., received 47 votes, Dr. Joseph D. McCarthy, Omaha, 62 and Dr. Thomas F. Thornton, Waterloo, Iowa, 32; no one having received a majority of the votes cast, the Speaker announced that another ballot would be taken between Dr. McCarthy and Dr. Stevenson.

Election of Trustees

The tellers announced the results of the voting on the blue ballot:

For Trustee for a term of five years to succeed Dr. William F. Braasch, Rochester, Minn., Dr. Louis A. Buie, Rochester, Minn., 53; Dr. Gunnar Gundersen, La Crosse, Wis., 63, and Dr. James R. McVay, Kansas City, Mo., 48. The Speaker announced that, as no one had received a majority of the votes cast, another vote would have to be taken on Dr. Buie and Dr. Gundersen.

For Trustee for a term of five years to succeed Dr. Ernest E. Irons, Chicago: Dr. Edwin S. Hamilton, Kankakee, Ill., 101, and Dr. Warren W. Furey, Chicago, 63.

The Speaker declared Dr. Hamilton elected Trustee for a term of five years, since he had received a majority of the votes cast.

On motion of Dr. Fred H. Muller, Illinois, seconded and carried. Dr. Edwin S. Hamilton, Kankakee, Ill., was declared unanimously elected Trustee.

For Trustee to serve three years to succeed Dr. C. W. Roberts, deceased: Dr. Walter B. Martin, Norfolk, Va., 110, and Dr. Wingate Johnson, Winston-Salem, N. C., 54. The Speaker declared Dr. Martin elected a Trustee for a term of three years, as he had received a majority of the votes cast.

Place of Annual Session in 1951

The tellers announced that Atlantic City had received 94 votes and Chicago 59. The Speaker declared that the House had selected Atlantic City as the place of the 1951 Annual Session, since it had received a majority of the votes cast.

Election of Trustee and of Member of Council on Medical Service

The tellers spread the second ballot for the two places in which no majority was had. The result of the vote was announced as follows:

For Trustee for a term of five years, Dr. Louis A. Buie, Rochester, Minn., 46, and Dr. Gunnar Gundersen, La Crosse, Wis., 87.

The Speaker declared Dr. Gundersen elected Trustee for a term of five years to succeed Dr. William F. Braasch, Rochester, Minn., since he had received a majority of the votes cast.

For Member of Council on Medical Service, Dr. Joseph D. McCarthy, Omaha, 68, and Dr. James Stevenson, Tulsa, Okla., 61.

The Speaker declared Dr. Joseph D. McCarthy, Omaha, having received the majority of the votes cast, elected a member of the Council on Medical Service for a term of three years.

The House adjourned sine die at 5:40 p. m.

The Scientific Exhibit

The Scientific Exhibit at the Chicago Session of the American Medical Association caused much favorable comment. The artistic quality of the exhibits, the care with which the material was selected and correlated, the patience and perseverance of the demonstrators all resulted in crowded aisles throughout the week. The studious attitude of the physicians present attested to the value of this form of graduate medical instruction.

Three special exhibits were subsidized by the Board of Trustees. The Special Exhibit on Fractures, occupying six booths, was presented for the seventeenth time under the guidance of a committee consisting of Dr. Kellogg Speed, Chicago, chairman; Dr. Frederick A. Jostes, St. Louis, and Dr. Gordon M. Morrison, Boston. The interest in this subject seems to increase with the years. A large number of competent demonstrators took part, and a pamphlet describing the exhibit was distributed.

The Special Exhibit on Physical Medicine was shown for the third time with the usual outstanding success. The committee in charge consisted of Dr. Frank H. Krusen, Rochester, Minn., chairman; Dr. Winfred Overholser, Washington, D. C., and Dr. Howard A. Rusk, New York. There were eight booths, and a pamphlet describing the work in each booth was distributed.

The Special Exhibit on Fresh Pathologic Material, which has been a feature from time to time for many years, was presented by a committee of which Dr. I. Davidsohn, Chicago, was chairman, assisted by a large group of competent pathologists. Fresh pathologic material was brought in each morning and afternoon from various local hospitals, and the continuous demonstrations were a valuable part of the meeting.

Other features of the meeting included a miscellaneous number of subjects. A group of exhibits on diabetes was supplemented by clinics and conferences on diabetes under the guidance of Dr. Howard F. Root, Boston. The program was continuous with a different speaker every half hour, and the room filled to capacity most of the time.

Cancer detection was emphasized by a group of eleven exhibits presented with the cooperation of the American Cancer Society, the American College of Surgeons and the Cancer Prevention Center of Chicago. Dr. Augusta Webster, Chicago, was chairman of the group.

The medical aspects of atomic energy were featured by ten exhibits which attracted an unusual amount of attention. The Atomic Energy Commission, as well as the Army, Navy and Air Force, were represented. Mr. Howard A. Carter, Chicago, assisted in organizing this program.

Motion pictures were shown in two theaters adjoining the exhibits. Thirty-six films were shown once each day throughout the week to enthusiastic audiences. Many of the films supplemented exhibits on the same subjects.

Seventeen sections of the Scientific Assembly presented groups of exhibits dealing with the various branches of medicine. The exhibits were carefully chosen by the Committee on Scientific Exhibit for timeliness and teaching value. Awards were made for the best exhibits by the Committee on Awards.

The Section on Internal Medicine showed fifteen exhibits, three of which received honorable mention. The section representative was Dr. Thomas C. Garrett, Philadelphia.

The Section on Surgery, General and Abdominal, had twenty-six exhibits, one of which was given a certificate of merit and two honorable mention. Dr. Walter G. Maddock, Chicago, was the section representative.

The Section on Obstetrics and Gynecology had nine exhibits, one of which received honorable mention. The section representative was Dr. Frederick H. Falls, Chicago.

The Section on Ophthalmology showed seven exhibits. There were three awards—a gold medal, a bronze medal and a certificate of merit. The section exhibit committee consisted of Dr. Georgiana D. Theobald, Oak Park, Ill., chairman; Dr. Edwin B. Dunphy, Boston and Dr. Phillips Thygeson, San Jose, Calif.

The Section on Laryngology, Otology and Rhinology had seven exhibits, one of which received a certificate of merit. Dr. James B. Costen, St. Louis, was the section representative.

The Section on Pediatrics had eight exhibits. There were two awards—a certificate of merit and an honorable mention. The section representative was Dr. Albert V. Stoesser, Minneapolis.

The Section on Experimental Medicine and Therapeutics had ten exhibits, one of which received a certificate of merit and one honorable mention. Dr. Robert W. Wilkins, Boston, was the section representative.

The Section on Pathology and Physiology presented nine exhibits. There were three awards—a gold medal, a bronze medal and an honorable mention. Dr. Frank W. Konzelmann, Atlantic City, was the section representative.

The Section on Nervous and Mental Diseases had six exhibits. The section representative was Dr. A. B. Baker, Minneapolis.

The Section on Dermatology and Syphilology had twelve exhibits, with two awards of a silver medal and honorable mention. The section representative was Dr. Francis W. Lynch, St. Paul.

The Section on Preventive and Industrial Medicine and Public Health had seventeen exhibits, one of which received a certificate of merit. The section representative was Dr. Paul A. Davis, Akron, Ohio.

The Section on Urology showed eight exhibits. Dr. John H. Morrissey, New York, was the section representative.

The Section on Orthopedic Surgery had ten exhibits. There were two awards—a silver medal and a certificate of merit. Dr. Tom Outland, Elizabethtown, Pa., was the section representative.

The Section on Gastro-Enterology and Proctology had eight exhibits. The section representatives were Drs. Donovan C. Browne, New Orleans, and J. P. Nesselrod, Evanston, Ill.

The Section on Radiology had five exhibits, one of which received an honorable mention. Dr. S. W. Donaldson, Ann Arbor, Mich., was the section representative.

The Section on Anesthesiology had four exhibits, one of which received a certificate of merit. The section representative was Dr. Urban H. Eversole, Boston.

The Section on General Practice of Medicine had eight exhibits, one of which received a certificate of merit. Dr. M. B. Casebolt, Kansas City, Mo., was the section representative.

Twenty-seven papers which were read before the sections of the Scientific Assembly were correlated with exhibits in the Scientific Exhibit.

Report of The Committee on Awards

The Committee on Awards made the following report:

GROUP I

(Awards in Group I are made for exhibits of individual investigation, which are judged on the basis of originality and excellence of presentation.)

The GOLD MEDAL to J. Garrott Allen, Margaret Sanderson, Willadene Egner, Charles McKeen, Richard Elghammer, James Crosbie and Burt Grossman, University of Chicago School of Medicine and Argonne National Laboratory, Chicago, for the exhibit on Hemorrhagic Disease Caused by Heparinemia—Temporary Control by Toluidine Blue or Protamine Sulfate.

The SILVER MEDAL to Harry B. Macey, Scott and White Hospital, Temple, Texas, for the exhibit on Plastic Procedure for Lymphedema of the Extremities.

The BRONZE MEDAL to William Stone Jr., Massachusetts Eye and Ear Infirmary, Boston, for the exhibit on New Type Movable Implant.

CERTIFICATES OF MERIT, Group I, are awarded to the following (alphabetically arranged):

William P. Boger and J. Wm. Crosson, Philadelphia General Hospital, Philadelphia, for the exhibit on Caronamide—Application to Enhancement of Penicillin Therapy.

Albert Faulconer Jr., Roger W. Ridley and Richard E. Jones, Mayo Clinic, Rochester, Minn., for the exhibit on An Acoustic Gas Analyzer for Research in Anesthesiology.

Arild E. Hansen and Hilda F. Wiese, University of Texas School of Medicine, Galveston, for the exhibit on Dietary Fat in Relation to the Skin.

Sibley W. Hoobler and Gordon K. Moe, University of Michigan Medical School, Ann Arbor, and Richard H. Lyons, Syracuse University Medical School, Syracuse, N. Y., for the exhibit on Autonomic Blockade with Tetraethylammonium—Pharmacologic Studies with Specific References to Its Diagnostic and Therapeutic Use in Peripheral Vascular Diseases.

David Lehr, New York Medical College, Flower and Fifth Avenue Hospitals, New York, for the exhibit on Low Toxicity of Sulfonamide Combinations—Experimental and Clinical Studies.

In addition, the following exhibits are deemed worthy of Honorable Mention (alphabetically arranged):

That of William Bickers, Richmond, Va., on Dysmenorrhea.

That of Helen Ollendorff Curth, Columbia University College of Physicians and Surgeons, New York, on Cancer and Acanthosis Nigricans.

That of Arthur Lack, Travis Winsor and William Adolph, University of Southern California School of Medicine, Los Angeles, and Birmingham Veterans Administration Hospital, Van Nuys, Calif., on Biomicroscopy of Conjunctival Vessels in Hypertension.

That of Irving S. Wright, Charles D. Marple and Dorothy F. Beck, Committee for the Evaluation of Anticoagulants in the Treatment of Coronary Occlusion with Myocardial Infarction, American Heart Association, New York, on Anticoagulants in the Treatment of Coronary Occlusion with Myocardial Infarction.

That of Anton S. Yuskis and George C. Griffith, University of Southern California School of Medicine and Los Angeles County General Hospital, Los Angeles, on Orthostatic Hypotension and Orthostatic Tachycardia.

GROUP II

(Awards in Group II are made for exhibits which do not exemplify purely experimental studies and which are judged on the basis of excellence of presentation and correlation of facts.)

The GOLD MEDAL to Bertha A. Klien, Chicago, for the exhibit on Disease of the Fundus Oculi.

The SILVER MEDAL to J. Walter Wilson, University of Southern California, and Orda A. Plunkett, University of California at Los Angeles, for the exhibit on Practical Medical Mycology—Culture and Identification of Fungi as an Office Procedure.

The BRONZE MEDAL to L. W. Kinsell, G. D. Michaels, Sheldon Margen, H. A. Harper, W. E. Larsen, D. P. McCallie and E. F. Evans, University of California Medical School, San Francisco and U. S. Naval Hospital, Oakland, Calif., for the exhibit on Protein Metabolism in Disease of the Liver.

CERTIFICATES OF MERIT, Group II, are awarded the following (alphabetically arranged):

John G. Bellows and Chester J. Farmer, Northwestern University Medical School, Chicago, for the exhibit on Treatment of Ocular Infections—Use of Chemotherapeutic Agents.

J. Brown Farrior, Tampa, Fla., and Richard C. Boyer, Ochsner Clinic, Tulane Medical School, New Orleans, for the exhibit on the Ear in Roentgen Anatomy.

Garrett Pipkin, St. Joseph's Hospital, Kansas City, Mo., for the exhibit on Indefinite Knee Symptoms Resembling Injured Cartilages.

Alfred R. Roos and John C. Roos, College of Medical Evangelists, Los Angeles, for the exhibit on Hay Fever Research in the Pacific Southwestern States—Visual Education in Allergy.

Claire L. Straith, William G. McEvitt, Matthew Pilling and John R. Lewis, Straith Clinic for Plastic Surgery, Detroit, for the exhibit on Automobile Injuries.

In addition, the following exhibits are deemed worthy of Honorable Mention (alphabetically arranged):

That of Carleton Dean, Michigan Crippled Children Commission, Lansing, Mich., on Prosthetic Training for Child Amputees in Michigan.

That of Georgia Price and Elizabeth F. Carr, Northwestern University Medical Library, Chicago, on Literature Illustrating the History of Surgery.

That of Michael A. Rubinstein, Montefiore Hospital, New York, on Multiple Myeloma—Its Relation to Leukemia.

That of John D. Stewart, Sidney M. Schaer, W. H. Potter and Alfred J. Massover, University of Buffalo School of Medicine, Buffalo, on Management of Massively Bleeding Gastroduodenal Ulcer.

That of Heinz S. Weems, James V. Warren, David F. James and Herbert M. Olnick, Emory University School of Medicine, Atlanta, Ga., on Contrast Visualization of the Vascular System.

That of Julius S. Weingart, Iowa Lutheran Hospital, Des Moines, Iowa, on Stereoscopic Photography of Pathologic Specimens.

SPECIAL COMMENDATION

Special Commendation is given to the group of exhibits on Atomic Energy for the timeliness and excellence of presentation of this subject.

Special Commendation is given to the group of exhibits on Cancer arranged with the cooperation of the American Cancer Society, the American College of Surgeons and the Cancer Prevention Center of Chicago.

Special Commendation is given to the group of exhibits on diabetes, as well as the Clinical Conference on Diabetes which is presented in conjunction with the exhibits under the chairmanship of Dr. Howard F. Root, Boston.

SUBSIDIZED EXHIBITS

The Committee on Awards commends highly the Special Exhibits on Fractures, Fresh Pathologic Material and Physical Medicine, which are sponsored by the Board of Trustees of the American Medical Association.

COMMENTS

The sincere and hearty cooperation of the representatives of the seventeen sections of the Scientific Assembly is largely responsible for maintaining the Scientific Exhibit as the most important educational feature of the A. M. A. Convention.

The Committee is impressed with the excellence of the motion pictures presented in the theaters adjacent to the Scientific Exhibit.

The Committee on Awards wishes to express its appreciation and that of all physicians to the Director of the Scientific Exhibit, Dr. Thomas G. Hull, and his assistants, for their selfless devotion in making possible these exhibits which represent the best in research and postgraduate medical education.

Respectfully submitted,

FRANK W. HARTMAN, Detroit, Chairman.
WILBUR BAILEY, Los Angeles.
DAVID BOSWORTH, New York.
DERYL HART, Durham, N. C.
JOE VINCENT MEIGS, Boston.

MINUTES OF THE SECTIONS

SECTION ON INTERNAL MEDICINE

WEDNESDAY, JUNE 23—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr. Cecil J. Watson of Minneapolis.

Drs. Robert M. Marcussen and Harold G. Wolff, New York, presented a paper on "The Therapy of Migraine Headache." Discussed by Drs. Roland P. Mackay of Chicago and Eugene Foldes, New York.

Drs. Russell L. Haden and Donald W. Bortz, Cleveland, presented a paper on "The Treatment of Pernicious Anemia." Discussed by Drs. Frank H. Bethell, Ann Arbor, Mich.; Howard L. Alt, Chicago; Hyman I. Goldstein, Camden, N. J., and William P. Murphy, Boston.

Dr. Henry M. Thomas Jr., Baltimore, read a paper on "What Is Psychotherapy?" Discussed by Dr. Francis J. Gerty, Chicago.

Dr. Robert H. Williams, Boston, read a paper on "Selection of Therapy for Individual Patients with Thyrotoxicosis." Discussed by Drs. Saul Hertz, Boston, and Willard O. Thompson, Chicago.

Dr. James S. McLester, Birmingham, Ala., read the Frank Billings Lecture on "Protein Comes into Its Own."

Dr. Elliott P. Joslin of Boston read a paper on "The Furtherance of Diabetes Therapy." Discussed by Drs. W. Wallace Dyer, Philadelphia; Henry T. Ricketts, Chicago, and Frederick M. Allen, New York.

THURSDAY, JUNE 24—AFTERNOON

The following officers were elected: Marion A. Blankenhorn, Cincinnati, chairman; Priscilla White, Boston, vice chairman; Charles T. Stone, Dallas, Texas, delegate; William D. Stroud, Philadelphia, alternate delegate; Thomas C. Garrett, Philadelphia, representative to the Scientific Exhibit.

Drs. F. Tremaine Billings Jr., Bernard M. Kalstone, James L. Spencer and George R. Meneely, Nashville, Tenn., presented a paper on "Prognosis of Acute Myocardial Infarction." Discussed by Drs. Herrman L. Blumgart, Boston, and Chauncey C. Maher, Chicago.

Drs. Louis Leiter, Reuben Mokotoff, Raymond Weston, Doris J. W. Escher, Leon Hellmann and Martin Cherkasky, New York, presented a paper on "The Mechanism and Treatment of Renal Dysfunction in Chronic Congestive Heart Failure." Discussed by Drs. Arthur M. Master, New York; Tinsley R. Harrison, Dallas, Texas, and Fred M. Allen, New York.

Dr. Cecil J. Watson, Minneapolis, read the chairman's address, on "Certain Activities and Impacts of the American Board of Internal Medicine."

Dr. Edward S. Ray, Richmond, Va., read a paper on "Sarcoidosis." Discussed by Drs. George T. Harrell, Winston-Salem, N. C., and Robert G. Bloch, Chicago.

Drs. John R. McDonald and Lewis B. Woolner, Rochester, Minn., presented a paper on "The Value of Cytologic Study of Sputum and Bronchial Secretions in the Diagnosis of Carcinoma of the Lung." Discussed by Dr. Henry A. Cromwell, New York.

Drs. Ralph Tompsett, Alphonse Timpanelli and Walsh McDermott, New York, presented a paper on "Discontinuous Therapy with Penicillin." Discussed by Drs. W. W. G. Maclachlan, Pittsburgh, and Frederick H. King, New York.

FRIDAY, JUNE 25—MORNING

A joint meeting was held with the Section on Experimental Medicine and Therapeutics. The minutes of this meeting appear in the minutes of the Section on Experimental Medicine and Therapeutics.

SECTION ON SURGERY, GENERAL AND ABDOMINAL

WEDNESDAY, JUNE 23—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr. B. Noland Carter, Cincinnati.

Dr. Arthur B. McGraw, Detroit, read a paper on "Factors Contributing to Low Mortality in Appendectomy for Acute Appendicitis: A Ten-Year Study." Discussed by Drs. Frederick F. Boyce, New Orleans; Max M. Zinninger, Cincinnati; J. L. Crook, Jackson, Tenn., and Arthur B. McGraw, Detroit.

Dr. William A. Altemeier, Cincinnati, read a paper on "The Treatment of Acute Septic Peritonitis." Discussed by Drs. Champ Lyons, New Orleans; Edwin J. Pulaski, San Antonio, Texas, and W. A. Altemeier, Cincinnati.

Drs. Robert W. Buxton and Frederick A. Coller, Ann Arbor, Mich., presented a paper on "Acute Obstruction of the Small Bowel." Discussed by Drs. R. J. Noer, Detroit; Clarence Dennis, Minneapolis, and Dr. Frederick A. Coller, Ann Arbor, Mich.

Dr. Marshall L. Michel, New Orleans, read a paper on "Acute Obstruction of the Colon." Discussed by Drs. Clarence Dennis, Minneapolis; George V. Brindley, Temple, Texas, and M. L. Michel, New Orleans.

Dr. Louis M. Rousselot, New York, read a paper on "The Rationale and Value of Combined (One Stage) Splenectomy and Portocaval Shunts in Portal Hypertension: Observations on Venous Shunts in the Postsplenectomy Patient with Recurring Hemorrhage." Discussed by Drs. Robert R. Linton, Brookline, Mass.; Paul Ravenna, Chicago, and L. M. Rousselot, New York.

Dr. Brian B. Blades, Washington, D. C., read a paper on "Empyema." Discussed by Drs. Edward M. Kent, Pittsburgh, and Thomas H. Burford, St. Louis.

THURSDAY, JUNE 24—MORNING

The following officers were elected: chairman, Dr. William MacFee, New York; vice chairman, Dr. Emil Holman, San Francisco.

Dr. B. Noland Carter, Cincinnati, read the chairman's address on "The Present Status of Surgery of the Heart and Associated Great Vessels."

Dr. George Crile Jr., Cleveland, read a paper on "The Incidence of Malignant Tumors of the Thyroid." Discussed by Drs. Charles W. Mayo, Rochester, Minn.; Warren H. Cole, Chicago, and George Crile Jr., Cleveland.

Drs. I. S. Ravdin and Edward Rose, Philadelphia, presented a paper on "Hyperthyroidism." Discussed by Drs. Harold L. Foss, Danville, Pa.; Warren H. Cole, Chicago, and I. S. Ravdin, Philadelphia.

Dr. Winchell McK. Craig, Rochester, Minn., read a paper on "Hypertension: Evaluation of Treatment." Discussed by Drs. Geza de Takats, Chicago; James L. Poppen, Boston; Frederick M. Allen, New York, and W. McK. Craig, Rochester, Minn.

Dr. Norman E. Freeman, San Francisco, read a paper on "Acute Arterial Injuries." Discussed by Drs. Frederick W. Cooper, Georgia; Harris B. Shumacker, Baltimore; Geza de Takats, Chicago, and N. E. Freeman, San Francisco.

Dr. Robert E. Gross, Boston, read a paper on "Surgical Treatment for Coarctation of the Aorta." Discussed by Drs. Willis J. Potts, Chicago; Richard B. Capps, Chicago; Alfred Blalock, Baltimore; Egbert H. Fell, Chicago; Norman Freeman, San Francisco, and Robert E. Gross, Boston.

FRIDAY, JUNE 25—MORNING

A joint meeting was held with the Section on Gastro-Enterology and Proctology.

Dr. A. H. Aaron, Buffalo, read a paper on "Newer Aspects of the Treatment of Ulcer."

Drs. Keith S. Crimson, R. W. Rundles, George J. Baylin and H. M. Taylor, Durham, N. C., presented a paper on "Vagotomy."

These papers were discussed by Drs. Lester R. Dragstedt, Chicago; Francis D. Moore, Boston; A. C. Ivy, Chicago; Waltman Walters, Rochester, Minn.; Walter L. Palmer, Chicago; Sara M. Jordan, Boston; R. L. Sanders, Memphis, Tenn.; Otto Porges, Chicago; R. S. Dinsmore, Cleveland; Erwin Levin, Chicago; Keith S. Grimson, Durham, N. C., and A. H. Aaron, Buffalo.

Dr. Russell S. Boles, Philadelphia, read a paper on "Nonspecific Inflammatory Lesions of the Terminal Ileum and Colon."

Dr. Leland S. McKittrick, Boston, read a paper on "Nonspecific Inflammatory Lesions of the Small and Large Bowel."

These papers were discussed by Drs. Clarence Dennis, Minneapolis; Burrill B. Crohn, New York; Lester R. Dragstedt, Chicago; Everett D. Kiefer, Boston; J. H. Fitzgibbon, Portland,

Ore.; A. F. R. Andresen, Brooklyn; Russell S. Boles, Philadelphia, and Leland S. McKittrick, Boston.

Dr. Neil W. Swinton, Boston, read a paper on "Diagnosis of Carcinoma of the Colon and Rectum." Discussed by Drs. Harry M. Weber, Rochester, Minn.; William H. Daniel, Los Angeles, and Neil W. Swinton, Boston.

SECTION ON OBSTETRICS AND GYNECOLOGY

Wednesday, June 23—Afternoon

The meeting was called to order at 2 o'clock by the chairman, Dr. William F. Mengert, Dallas, Texas.

Dr. Gerald W. Gustafson, Indianapolis, read a paper on "The Management of Occiput Posterior Position." Discussed by Drs. Edward L. Cornell, Chicago; Gerald Rogers, Oklahoma City, and Buford G. Hamilton, Kansas City, Mo.

Drs. Catherine Macfarlane, Margaret C. Sturgis and Faith S. Fetterman, Philadelphia, presented a paper on "Report of a Ten Year Experiment in the Control of Cancer of the Uterus." Discussed by Drs. B. Z. Cashman, Pittsburgh; Augusta Webster, Chicago; J. Hofbauer, Cincinnati, and Catherine Macfarlane, Philadelphia.

Dr. Goodrich C. Schauffler, Portland, Ore., read a paper on "Unusual Experiences in the Practice of Obstetrics and Gynecology in China." Discussed by Drs. Frank E. Whitacre, Memphis, Tenn.; Nicholson J. Eastman, Baltimore; Bertha Selmon, Battle Creek, Mich., and Goodrich C. Schauffler, Portland, Ore.

The following papers were read in a panel discussion on "Endometriosis," Dr. Joe V. Meigs, Boston, moderator.

Dr. Francis B. Carter, Durham, N. C.: "Diagnosis and Medical Management."

Dr. Clayton T. Beacham, Philadelphia: "Conservative Surgical Treatment in Young Women."

Dr. Clyde L. Randall, Buffalo, N. Y.: "Management of Complications of Endometriosis."

Thursday, June 24—Afternoon

The following officers were elected: chairman, Dr. LeRoy A. Calkins, Kansas City, Kan.; vice chairman, Dr. Herbert E. Schmitz, Chicago; secretary, Dr. Arthur B. Hunt, Rochester, Minn.; representative of Board of Governors of the American College of Surgeons, Dr. E. L. King, New Orleans; representatives to American Board of Obstetrics and Gynecology, Dr. Francis B. Carter, Durham, N. C.; Dr. R. A. Kimbrough, Philadelphia, and Dr. Robert A. Faulkner, Cleveland; representatives to American Committee on Maternal Welfare, Drs. Benbow Thompson, Los Angeles, R. D. Mussey Sr., Rochester, Minn., and Oren Moore, Charlotte, N. C.; representative of the Section to the Scientific Exhibit Committee, Dr. F. H. Falls, Chicago.

Dr. William F. Mengert, Dallas, read the chairman's address, entitled "Estimation of Pelvic Capacity."

Dr. Albert Decker, New York, read a paper on "Culdoscopy." Discussed by Drs. Richard W. TeLinde, Baltimore; Woodward Beacham, New Orleans; Irving Stein, Chicago, and Albert Decker, New York.

Dr. Wilson Footer, Oakland, Calif., read a paper on "Pseudomalignant Changes in the Cervix During Pregnancy." Discussed by Drs. Karl H. Martzloff, Portland, Ore.; W. J. Dieckmann, Chicago; Robert L. Faulkner, Cleveland; J. Hofbauer, Cincinnati; Charles Galloway, Evanston, Ill.; Emil Novak, Baltimore, and Wilson Footer, Oakland, Calif.

The following papers were presented in a panel discussion, Dr. C. A. Gordon, Brooklyn, moderator.

Dr. Bernard J. Hanley, Los Angeles, read a paper on "Antepartum and Intrapartum Obstetric Hemorrhage."

Dr. Russell J. Moe, Duluth, Minn., read a paper on "Postpartum Hemorrhage."

Dr. Joseph M. Hill, Dallas, Texas, read a paper on "Precautions to be Taken on Blood Transfusion."

Dr. Frederick W. Hoffbauer, Minneapolis, read a paper on "Precautions in the Use of Plasma in Obstetric Hemorrhage, with Special Reference to the Causation on Hepatitis."

Friday, June 25—Morning

A joint meeting was held with the Section on Pediatrics. The minutes of this meeting appear in the minutes of the Section on Pediatrics.

SECTION ON OPHTHALMOLOGY

Wednesday, June 23—Morning

The meeting was called to order at 9:15 o'clock by the chairman, Dr. Everett L. Goar, Houston, Texas.

On motion of Dr. Arthur J. Bedell, Albany, N. Y., it was voted unanimously to nominate Dr. John A. MacMillan of Montreal, Canada, as an Affiliate Fellow of the American Medical Association, in view of his membership in a chartered national medical society of a foreign country adjacent to the United States, as set forth in the Constitution and By-Laws of the Association.

The Secretary was instructed to prepare immediately a letter setting forth to the Judicial Council of the House of Delegates Dr. MacMillan's qualifications for such an honor, including his excellent training and reputation.

Dr. Everett L. Goar, Houston, Texas, read the chairman's address, entitled "Postgraduate Education in Ophthalmology in the United States."

Dr. John A. MacMillan, Montreal, Canada, read a paper on "Affections of the Lacrimal Gland and Ocular Complications."

Dr. Algernon B. Reese, New York, read a paper on "Retrolental Fibroplasia and Persistent Hyperplastic Primary Vitreous: Two Entities." Discussed by Drs. Brittain F. Payne, New York; Bertha A. Klien, Chicago; Harold Falls, Ann Arbor, Mich., and William C. Owens, Baltimore.

Dr. Theodore H. Ingalls, Southborough, Mass., read a paper on "The Epidemiology of Encephalo-Ophthalmic Dysplasia." Discussed by Drs. William C. Owens, Baltimore, and Everett Kinsey, Boston.

Drs. Adolph Posner and Abraham Schlossman, New York, presented a paper on "Treatment of Glaucoma Associated with Iridocyclitis." Discussed by Drs. Paul A. Chandler, Boston; Albert D. Ruedemann, Detroit; Harvey Thorpe, Pittsburgh; Conrad Berens, New York, and Everett L. Goar, Houston, Texas.

Dr. William B. Clark, New Orleans, read a paper on "The Use of Strips of Orbicularis Oculi Muscles in Surgery of the Eyelids." Discussed by Drs. Norman L. Cutler, Wilmington, Del., and Rex C. House, Fort Sam Houston, Texas.

Thursday, June 24—Morning

Dr. Thomas D. Allen, Chicago, read the report of the Joint Committee on Optics and Visual Physiology. On motion regularly moved and seconded, it was voted unanimously to send a copy of that part of the report pertaining to contact lenses to Colonel Don Longfellow of the Surgeon General's Office, since that office is presently engaged in an investigation of contact lenses.

Chairman Goar read the report of the Committee on the American Board of Ophthalmology.

Dr. Trygve Gundersen, Boston, secretary, read a résumé of the report of the Joint Committee on the National Museum of Ophthalmic Pathology.

Chairman Goar read the report of the Committee on Scientific Exhibit.

Dr. Gundersen read the report of the Committee on the Museum of Ophthalmic History.

Dr. Lawrence T. Post, St. Louis, read the report of the Committee on the American Orthoptic Council.

Chairman Goar read the report of the Advisory Committee to the Eye Health Committee of the Student Health Association.

Dr. M. Hayward Post, St. Louis, read the report of the representative of the Section to the College of Surgeons.

Dr. Frederick A. Davis, Madison, Wis., read the report of the Committee on Awarding the Knapp Medal.

Dr. A. D. Ruedemann, Detroit, read the report of the representative from the Section to the Joint Committee of Industrial Ophthalmology.

Dr. Francis Heed Adler, Philadelphia, read the report of the Committee on the Knapp Testimonial Fund.

Dr. Gundersen read the report on the Howe Fund.

Dr. Conrad Berens, New York, presented the report of the Joint Committee to the National Conference on Medical Nomenclature. He explained the proposal to place in the index of the Standard Nomenclature the numbers of the international classification. The synonyms are not to be used in the body of the volume, but will be placed in the index.

Dr. Arthur J. Bedell, Albany, N. Y., read the report of the delegate of the Section to the House of Delegates of the American Medical Association.

On motion regularly made and seconded, it was voted unanimously that Dr. Bedell's resignation as representative of the Section to the House of Delegates be accepted with regret. The members of the Section extended Dr. Bedell a rising vote of thanks for his thirty-three years of faithful service.

Dr. Derrick Vail, Chicago, read the report of the executive committee.

Dr. Francis Heed Adler, Philadelphia, vice-chairman, presented the Ophthalmic Research Medal of the Section on Ophthalmology to Dr. Alan Churchill Woods, Baltimore. The members of the Section extended an ovation to Dr. Woods.

The following officers were elected: chairman, Dr. M. Hayward Post, St. Louis; vice chairman, Dr. Brittain F. Payne, New York; secretary, Dr. Trygve Gundersen, Boston; delegate, Dr. William L. Benedict, Rochester, Minn.; alternate delegate, Dr. Parker Heath, Detroit; members of Committee for the Award of the Knapp Prize: Dr. Arnold Knapp, New York, chairman; Dr. Phillips Thygeson, San Jose, Calif., and Dr. David Cogan, Boston; Joint American Committee on Optics and Visual Physiology: Dr. Thomas D. Allen, Chicago, chairman; Dr. Walter B. Lancaster, Boston, and Dr. Lawrence T. Post, St. Louis; Committee on American Board of Ophthalmology: Dr. John Dunnington, New York; Dr. C. S. O'Brien, Iowa City, Iowa; Dr. Phillips Thygeson, San Jose, Calif., and Dr. Brittain F. Payne, New York; Joint Committee on National Museum of Ophthalmic Pathology: Dr. Jonas Friedenwald, Baltimore; Committee on Scientific Exhibit from Eye Section: Dr. Georgiana Theobald, Oak Park, Ill., chairman; Dr. Phillips Thygeson, San Jose, Calif., and Dr. Edwin B. Dunphy, Boston; Committee on Museum of Ophthalmic History: Dr. Burton Chance, Philadelphia, chairman; Dr. Hans Barkan, San Francisco, and Dr. E. V. L. Brown, Chicago; Committee on American Orthoptic Council: Dr. Lawrence T. Post, St. Louis; Dr. Truman Boyes, New York, and Dr. Richard Scobee, Fort Worth, Texas. Advisory Committee to the Eye Health Committee of the Student Health Association: Dr. W. L. Benedict, Rochester, Minn.; representatives of Section to College of Surgeons, Board of Governors: Dr. M. Hayward Post, St. Louis; Dr. James N. Greear, Washington, D. C., and Dr. A. Ray Irvine, Los Angeles; representatives from the Section to the Joint Committee of Industrial Ophthalmology: Dr. A. D. Ruedemann, Detroit, chairman; Dr. Hedwig Kuhn, Hammond, Ind., and Dr. Glenn Harrison, Mason City, Iowa; Committee on Public Relations: Dr. Derrick Vail, Chicago; Dr. Parker Heath, Detroit; Dr. Walter B. Lancaster, Boston; Dr. A. Ray Irvine, Los Angeles; Dr. Frederick A. Davis, Madison, Wis.; Dr. Frederick C. Cordes, San Francisco; Dr. Brittain F. Payne, New York; Dr. S. Judd Beach, Portland, Maine; Dr. Alan C. Woods, Baltimore, and Dr. Lawrence T. Post, St. Louis; Joint Committee to National Conference on Medical Nomenclature: Dr. Conrad Berens, New York.

Dr. Arthur J. Bedell, Albany, N. Y., representative of the Section to the House of Delegates, explained that he had taken the necessary steps to expedite the election to Affiliate Fellowship of Dr. John A. MacMillan of Montreal, Canada, and had been assured by the Judicial Council that speedy favorable action would be taken. Dr. Bedell read the list of Dr. MacMillan's qualifications for this Fellowship.

Dr. S. Judd Beach, Portland, Maine, read a paper on "Verified Refraction." Discussed by Drs. M. Hayward Post Jr., St. Louis; Hugo L. Bair, Rochester, Minn,; Joseph I. Pascal, New York, and I. S. Tassman, Philadelphia.

Dr. Arnold W. Forrest, New York, read a paper on "Intraorbital Tumors." Discussed by Drs. Georgiana D. Theobald, Oak Park, Ill.; T. E. Sanders, St. Louis, and Alan C. Woods, Baltimore.

Drs. P. Robb McDonald and Irving H. Leopold, Philadelphia, presented a paper on "The Use of 'D.F.P.' (Diisopropyl Fluorophosphate) in Glaucoma: Evaluation of Results over a Three Year Period." Discussed by Drs. Leo L. Mayer, St. Louis; William F. Hughes Jr., Chicago; Ralph Rychner, Memphis, Tenn.; Adolph Posner, New York, and Everett L. Goar, Houston, Texas.

Dr. Kenneth C. Swan, Portland, Ore., read a paper on "The Blind Spot Syndrome." Discussed by Drs. Francis Heed Adler, Philadelphia, and Hermann M. Burian, Boston.

Dr. Adolph Posner, New York, demonstrated a tonometer which he has developed in his work.

FRIDAY, JUNE 25—MORNING

Dr. Ralph S. McLaughlin, Charleston, W. Va., read a paper on "Nonmedical Problems in Industrial Ophthalmology." Discussed by Drs. Hedwig S. Kuhn, Hammond, Ind.; William A. Sawyer, Rochester, N. Y., and Leo L. Mayer, St. Louis.

Dr. Alan C. Woods, Baltimore, read a paper on "The Use of Streptomycin and Streptomycin Plus 'Promizole' in Experimental Ocular Tuberculosis." Discussed by Drs. Phillips Thygeson, San Jose, Calif., and John G. Bellows, Chicago.

Chairman Goar announced that the House of Delegates had confirmed the nomination of Dr. John A. MacMillan, Montreal, Canada, as an Affiliate Fellow of the American Medical Association, and that four members of the Section were awarded honors for exhibits: Dr. Bertha A. Klien, Chicago, was awarded the Gold Medal for her exhibit on "Diseases of the Fundus Oculi"; Drs. John G. Bellows and Chester J. Farmer, Chicago, received a Certificate of Merit for their exhibit on "Treatment of Ocular Infections: Use of Chemotherapeutic Agents"; Dr. William Stone Jr., Boston, received the Bronze Medal for his exhibit on "A New-Type Movable Implant."

Dr. Harold Gifford Jr., Omaha, Neb., read a paper entitled "A Method of Retrobulbar Anesthesia Which Produces an Associated Motor Block of the Extraocular Muscles." Discussed by Drs. Garrett L. Sullivan, Boston; Edward Burch, St. Paul; Purman Dorman, Seattle, and Everett L. Goar, Houston, Texas.

Dr. Watson Gailey, Bloomington, Ill., read a paper on "Basic Principles of Ocular Muscle Surgery." Discussed by Drs. Frank D. Carroll, New York; Beulah Cushman, Chicago; Purman Dorman, Seattle, and A. D. Prangen, Rochester, Minn.

Dr. Gundersen read a further report of the Committee to Study the Effects of Silver Nitrate in Biological Preparations in the Prevention of Ophthalmic Neonatorum. On motion regularly made and seconded, it was voted unanimously to approve the report, approve the recommendation and send copies to the National Society for the Prevention of Blindness, the editor of the *Woman's Home Companion*, the editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, and to the forty-eight state health departments.

SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY

WEDNESDAY, JUNE 23—AFTERNOON

The meeting was called to order at 2:05 o'clock by the chairman, Dr. Fletcher D. Woodward, Charlottesville, Va.

Dr. David Davis, Washington, D. C., read a paper on "Inhalation of Nebulized Aerosols in Office Practice." Discussed by Drs. Alvan L. Barach, New York, and Samuel J. Segal, Boston

Dr. Watt W. Eagle, Durham, N. C., read a paper on "The Symptomatic Elongated Styloid Process." Discussed by Drs. C. M. Kos, Iowa City, Iowa; O. E. Van Alyea, Chicago; Murdock Equen, Atlanta, Ga., and L. A. Nelson, Dallas, Texas.

Dr. De Graaf Woodman, New York, read a paper on "Rehabilitation of the Larynx in Cases of Bilateral Abductor Paralysis: A Report of the Past Four Years' Experience with the Open Approach to Arytenoidectomy for Relief of Bilateral Abductor Paralysis." Discussed by Drs. Paul H. Holinger, Chicago; Fletcher D. Woodward, Charlottesville, Va., and David R. Higbee, San Francisco.

Dr. Russell A. Sage, Indianapolis, read a paper on "Differential Diagnosis of Oral Lesions." Discussed by Drs. Le Roy

A. Schall, Boston; Charles D. Blassingame, Memphis, Tenn., and Joseph Atkins, Philadelphia.

Dr. O. Popper, Johannesburg, South Africa, read a paper on "Transtympanic Fenestration: The Final Technic." Discussed by Drs. Douglas Carruthers, Sydney, Australia; A. L. Juers, Chicago, and Scott Stevenson, London, England.

THURSDAY, JUNE 24—AFTERNOON

On motion regularly made and seconded it was voted unanimously to discharge the Committee on Lye Legislation with the thanks of the Section for the splendid work it has done in the past.

In his report as representative to the American Board of Otolaryngology, Dr. LeRoy A. Schall, Boston, announced that in the examinations conducted in the spring, out of a total of 77 applicants approved by the Credentials Committee, 52 passed and 25 failed, with a percentage of failures of 32.4 per cent. In the October examination, out of a total of 71 qualified applicants examined, 47 passed and 24 failed, with a percentage of failures of 33.8 per cent. Approximately 3,000 persons are now certified by the American Board of Otolaryngology.

The following officers were elected: chairman, Dr. Henry B. Orton, Newark, N. J.; vice chairman, Dr. Daniel S. Cunning, New York; secretary, Dr. J. Milton Robb, Detroit; delegate, Dr. Gordon F. Harkness, Davenport, Iowa; alternate, Dr. Carl H. McCaskey, Indianapolis; representative of Section to Scientific Exhibit, Dr. James B. Costen, St. Louis; representative to American College of Surgeons, Dr. Louis H. Clerf, Philadelphia.

Dr. Fletcher D. Woodward, Charlottesville, Va., gave the chairman's address, entitled "A Medical Criticism of Automotive Engineering."

On motion regularly made and seconded, it was voted unanimously to nominate for Affiliate Fellowship the names of David E. Holtman, D.D.S., Boyceville, Wis., and Oscar Koenig, D.D.S., Glendale, Calif.

Dr. John R. Simpson, Pittsburgh, read a paper on "The Management of Acute Laryngotracheobronchitis." Discussed by Drs. Louis H. Clerf, Philadelphia; Paul H. Holinger, Chicago; Gabriel Tucker, Philadelphia; Thomas Galloway, Evanston, Ill., and David Davis, Washington, D. C.

Dr. John B. Erich, Rochester, Minn., read a paper on "Laryngectomy: A Surgical Technic Which Promotes Rapid Healing." Discussed by Drs. LeRoy A. Schall, Boston; Louis H. Clerf, Philadelphia; C. L. Jackson, Philadelphia, and Joseph P. Atkins, Philadelphia.

Dr. J. Brown Farrior, Tampa, Fla., read a paper on "Lymphoid Eustachian Salpingitis (Lymphoid Tubo-Tympanitis): Selective Criteria for Radiation Therapy." Discussed by Drs. Gilbert E. Fisher, Birmingham, Ala.; John R. Lindsay, Chicago, and Stacy R. Guild, Baltimore.

FRIDAY, JUNE 25—AFTERNOON

Dr. Howard P. House, Los Angeles, read a paper on "Surgery of the Chronic Ear by the Endaural Approach." Discussed by Drs. John F. Tolan, Seattle; James E. Croushore, Detroit, and O. Popper, Johannesburg, South Africa.

Dr. Stacy R. Guild, Baltimore, read a paper on "The Interpretation of Hearing Tests." Discussed by Dr. L. R. Boies, Minneapolis.

Dr. Burt R. Shurly, Detroit, delegate, in making his report, announced his resignation after twenty-five years of service. He stated that a resolution had been adopted warning the profession against the trend of interns and medical students toward establishing a left wing organization with definite communistic tendencies. He also announced the formation of a Section on Diseases of the Chest.

The members of the Section extended an ovation to Dr. Shurly in recognition of his long years of faithful service.

Chairman Woodward introduced Dr. Gordon Harkness, Davenport, Iowa, the newly elected delegate.

Drs. George S. McReynolds, Fred R. Guilford and G. R. Chase, Galveston, Texas, presented a paper on "Blast Injuries to the Ear (Texas City Disaster)." Discussed by Drs. John S. Knight, Kansas City, Mo.; Paul A. Campbell, Chicago, and Stanton A. Friedberg, Chicago.

Dr. David R. Higbee, San Diego, Calif., read a paper on "The Sphenopalatine Ganglion: Anatomy, Function and Symptomatology." Discussed by Drs. William E. Grove, Milwaukee, and W. Likely Simpson, Memphis, Tenn.

Drs. Chevalier L. Jackson, John V. Blady, Charles Norris and Walter Maloney, Philadelphia, presented a paper on "Cancer of the Larynx: Five-Year End Results in Series of Five Hundred Cases, with Special Study of Those Developing Recurrence or Metastasis." Discussed by Drs. Gordon B. New, Rochester, Minn.; Paul Holinger, Chicago; Gabriel Tucker, Philadelphia; Murdock Equen, Atlanta, Ga., and John Blady, Philadelphia.

SECTION ON PEDIATRICS

WEDNESDAY, JUNE 23—MORNING

The meeting was called to order at 9 o'clock by Dr. Julius Hess, Chicago, acting chairman.

The meeting was opened with a one minute memorial tribute to the late chairman, Dr. Oscar Reiss, Los Angeles.

Drs. R. J. Huebner, W. L. Jellison and M. Dorothy Beck, Hondo, Calif., presented a paper on "American Q Fever." Discussed by Drs. Garnett Cheney of San Francisco and Thomas B. Turner of Baltimore.

Dr. Russell J. Blattner, Houston, Texas, presented a paper on "Isolation and Identification of Virus from Body Fluids of Human Subjects." Discussed by Drs. Herbert A. Wenner, Kansas City, Mo., and James P. Leake, Washington, D. C.

Dr. John M. Adams, Minneapolis, read a paper on "Primary Pneumonitis in Infancy: Clinical, Epidemiologic and Pathologic Observations." Discussed by Dr. C. B. Conklin, Washington, D. C.

Drs. Albert E. Casey, Birmingham, Ala., and William I. Fishbein, Francis B. Gordon, Frank M. Schabel Jr. and Herman N. Bundesen, Chicago, presented a paper on "Clinical Manifestations of Infection with Poliomyelitis Virus." Discussed by Drs. Hulda E. Thelander, San Francisco; James P. Leake, Washington, D. C.; Clarence Webb, Shreveport, La.; Haddon M. Keith, Rochester, Minn., and A. F. Abt, Chicago.

Dr. Edward Scott O'Keefe, Lynn, Mass., read a paper on "Enteral Treatment of Diarrhea in Infancy." Discussed by Drs. Arthur W. Chung, New York, and Noel G. Shaw, Evanston, Ill.

Dr. John A. Toomey, Cleveland, read a paper on "Reaction to Whooping Cough Vaccination." Discussed by Drs. Archibald L. Hoyne and Louis M. Sauer, Chicago.

THURSDAY, JUNE 24—MORNING

The following officers were elected: chairman, Dr. Woodruff L. Crawford, Rockford, Ill.; vice chairman, Dr. Ambrose McGee, Richmond, Va.; secretary, Dr. Margaret Mary Nicholson, Washington, D. C.; delegate, Dr. William Weston, Columbia, S. C.

Dr. F. P. Greenbaum presented a resolution as follows:

This is in memorial of Dr. Oscar Reiss, chairman of the Section on Pediatrics, of the American Medical Association, born March 4, 1883, died June 16, 1948. The announcement of the sudden death of Oscar Reiss, as he was preparing to come to Chicago to preside over the sessions of the Section on Pediatrics of the American Medical Association, deeply touched those members attending the opening meeting on Wednesday, June 23.

Besides being chairman of the Section on Pediatrics—an office given only to those who evidence real leadership—Oscar, as he was affectionately called by hundreds of us, was held in the highest esteem and respect by all who were privileged to know him personally or through his many worth while contributions to pediatric literature.

We all know how he appreciated the chairmanship of this Section and how happy he was to serve in that capacity. The splendid program of this meeting is an evidence of the attention which he gave to all the duties of the office.

Dr. Reiss graduated from the Medical School of the University of Illinois in 1906. He had his pediatric training at the Sarah Morris Hospital, the Children's Department of Michael Reese Hospital, under Drs. Abt and Hess.

After a few years of practice in Chicago, he moved to Los Angeles. In that city he rose to a position of preeminence in his specialty in a large field. We list a few of his many activities: Chief of the Pediatric Service of the Los Angeles Children's Hospital; Associate Clinical Professor of Pediatrics of the University of California; Director of the Pediatric Service of the Cedars of Lebanon Hospital; member of the Medical Milk Commission; Chairman of the Los Angeles Mental Hygiene

Society, and member of the important National Advisory Committee of the Children's Bureau. He was specialist certified by the American Board of Pediatrics since 1931, and a fellow of the American Academy of Pediatrics.

With all of these duties, he still found time to train and guide young pediatricians, all of whom loved and revered him. Many of them visited him in California and always found him to be a genial and charming host; a family man, happiest in his home, and a respected member of the community.

His life of service may well be of inspiration to us always. He will be missed and his memory will be cherished.

We, the assembled members of the Section on Pediatrics, meeting in Chicago, June 24, 1948, hereby desire to record permanently on the minutes of this Section the sense of deep loss in the death of our leader and colleague, Oscar Reiss.

Resolved, That a copy of this memorial be sent to his bereaved wife and children with our sympathy.

The resolution was unanimously adopted.

Dr. L. W. Sauer, Evanston, Ill., presented the following motion: "I hereby make a motion that the chairman of the Section on Pediatrics appoint a committee to study the subject of convulsions and encephalopathy after the administration of any type of antigen—a report to be submitted to the Section at some future meeting." The motion was unanimously adopted.

Dr. M. G. Peterman, Milwaukee, read a paper on "Epilepsy in Childhood." Discussed by Drs. Ambrose W. McGee, Richmond, Va., and Frederick A. Gibbs, Chicago.

Drs. James G. Hughes, Robert G. Jordan and Fontaine S. Hill, Memphis, Tenn., presented a paper "Jet Injection in Pediatric Practice." Discussed by Drs. Robert A. Hingson, Memphis, Tenn., and Frank H. J. Figge, Baltimore.

Dr. Darell Boyd Harmon, Austin, Texas, presented an address on "The Classroom as a Factor in Growth Deviation." Discussed by Drs. George F. Munns, Winnetka, Ill.; Thomas J. McElhenny, Austin, Texas, and Dean F. Smiley, Chicago.

Dr. Arthur F. Abt, Chicago, read a paper on "Aplastic Anemia in Children, Report of a Case with Treatment by Splenectomy." Discussed by Drs. Michael Pierce, Chicago, and John E. Cassidy, Washington, D. C.

Dr. Abraham Levinson, Chicago, read a paper on "Streptomycin Therapy in Tuberculous Meningitis." Discussed by Drs. W. W. Bryant Jr., Pittsburgh; Gilbert J. Levy, Memphis, Tenn., and William S. Hoffman, Chicago.

Dr. Sidney A. Portis, Chicago, read a paper on "Newer Concepts of the Etiology and Management of Idiopathic Ulcerative Colitis." Discussed by Drs. Robert J. Coffey, Washington, D. C.; Peter D. Comanduras, Arlington, Va., and Franz G. Alexander, Chicago.

FRIDAY, JUNE 25—MORNING

A joint meeting was held with the Section on Obstetrics and Gynecology.

The following papers were read in a panel discussion on "Fetal Anoxia at Birth," Dr. C. Anderson Aldrich, Rochester, Minn., moderator.

Dr. Clement A. Smith, Boston: "Physiologic Background of Fetal Anoxia at Birth and Cyanosis of the Newborn."

Dr. Nicholson J. Eastman, Baltimore: "Prevention of Fetal Anoxia at Birth and Cyanosis of the Newborn."

Dr. Stewart H. Clifford, Boston: "Differential Diagnosis and Management of Fetal Anoxia at Birth and Cyanosis of the Newborn."

Dr. W. W. Zuelzer, Detroit: "Pathology of Conditions in which Fetal Anoxia at Birth and Cyanosis of the Newborn are an Outstanding Feature."

Dr. Edwin L. Kendig, Richmond, Va., read a paper on "A Misconception Concerning the Rh Factor and the Interruption of Pregnancy." Discussed by Drs. S. A. Cosgrove, Jersey City, N. J., and John C. Hughes, Pittsburgh.

Dr. M. Hines Roberts, Atlanta, Ga., read a paper on "Emergencies Encountered in the Neonatal Period." Discussed by Drs. Fred L. Adair, Chesterton, Ind., and Nina A. Anderson, Cincinnati.

Dr. Harold W. Dargeon, New York, read a paper on "Ovarian Tumors in Childhood." Discussed by Drs. Goodrich C. Schauffler, Portland, Ore., and Howard T. Karsner, Cleveland.

SECTION ON EXPERIMENTAL MEDICINE AND THERAPEUTICS

WEDNESDAY, JUNE 23—MORNING

The meeting was called to order at 9:20 o'clock by the chairman, Dr. Walter Bauer, Boston.

Dr. Frederick J. Stare, Boston, read a paper on "Fat in Parenteral Nutrition." Discussed by Drs. Smith Freeman, Chicago; Jerome W. Conn, Ann Arbor, Mich., and Walter Bauer, Boston.

Drs. Michael G. Wohl, John G. Reinhold, S. Brandt Rose, L. Ashby Adams and Moses Francis, Philadelphia, presented a paper on "Antibody Response in Patients with Hypoproteinemia, with Special Reference to the Effect of Protein and Protein Hydrolysate Supplementation." Discussed by Dr. Paul R. Cannon, Chicago.

Dr. Jerome W. Conn, Ann Arbor, Mich., presented a paper on "Clinical Significance of the Electrolyte Composition of Sweat in Abnormalities of Adrenal Cortical Function." Discussed by Drs. Benjamin F. Sieve, Boston, and J. G. G. Borst, Amsterdam, Holland.

Drs. Wesley W. Spink, Wendell H. Hall, James M. Shaffer and Abraham I. Braude, Minneapolis, presented a paper on "The Specific Treatment of Brucellosis with a Combination of Streptomycin and a Sulfonamide Compound." Discussed by Drs. C. Wesley Eisele, Chicago, Max Michael, Atlanta, Ga., and Walter Bauer, Boston.

Drs. Benedict F. Massell, James W. Dow and T. Duckett Jones, Boston, presented a paper on "Studies Concerning Oral Penicillin in Patients with Rheumatic Fever." Discussed by Drs. Wesley W. Spink, Minneapolis, and Walter Bauer, Boston.

Drs. Leo Loewe, Albert E. Sobel and Erna Alturr-Werber, Brooklyn, presented a paper on "New Penicillin Products for Sustained Effects." Discussed by Drs. Donald R. Nichols, Rochester, Minn., and Harry F. Dowling, Washington, D. C.

THURSDAY, JUNE 24—MORNING

The following officers were elected: chairman, Dr. Dwight L. Wilbur, San Francisco; vice chairman, Dr. McKeen Cattell, New York; secretary, Dr. Carl V. Moore, St. Louis; delegate: Dr. Edgar V. Allen, Rochester, Minn.; alternate, Dr. Charles M. Gruber, Philadelphia; representative to Scientific Exhibit: Dr. Robert W. Wilkins, Boston.

Dr. Walter Bauer, Boston, read the chairman's address, entitled, "The Importance of a Comprehensive Approach in the Treatment of Rheumatoid Arthritis."

Dr. L. T. Coggeshall, Chicago, read a paper on "The Cure of Recurrent Vivax Malaria with Pentaquine." Discussed by Dr. Alf S. Alving, Chicago.

Dr. Louis K. Diamond, Boston, read a paper on "The Use of Antihemophilic Fraction in the Treatment of Hemophilia." Discussed by Dr. Carl V. Moore, St. Louis.

Drs. Myron Prinzmetal, Eliot Corday, Ramon Spritzler and H. C. Bergman, Los Angeles, presented a paper on "Radiocardiography: A Method for Visualizing the Flow of Blood Through the Heart Utilizing Radioactive Isotopes." Discussed by Drs. Nylin, Stockholm; W. D. Mayer, Detroit, and Louis J. Voorhas, Chicago.

Drs. Hans H. Hecht and Ferne S. Focht, Salt Lake City, presented a paper on "The Influence of "Dibenamine" on the Function of the Sympathetic Nervous System in Man." Discussed by Dr. James P. Hendrix, Durham, N. C.

FRIDAY, JUNE 25—MORNING

A joint meeting was held with the Section on Internal Medicine.

Drs. Irving S. Wright and Charles D. Marple, New York, presented "Report of Committee for the Evaluation of the Use of Anticoagulants in the Treatment of Coronary Thrombosis with Myocardial Infarction." Discussed by Drs. Bernard Drexler, Rochester, N. Y., and Walter Vest, Huntington, W. Va.

Dr. Irvine H. Page, Cleveland, read a paper on "Pathogenesis of Arterial Hypertension." Discussed by Dr. Carlos Jimenez Diaz, Madrid, Spain.

Dr. George Saslow, St. Louis, read a paper on "Personality Factors and Essential Hypertension." Discussed by Dr. Franz G. Alexander, Chicago.

Dr. Robert W. Wilkins, Boston, read a paper on "Laboratory Studies in Man of Drugs Recently Introduced for the Relief of Essential Hypertension." Discussed by Drs. Hans H. Hecht, Salt Lake City; S. K. Robinson, Chicago, and Sibley W. Hoobler, Ann Arbor, Mich.

Dr. Henry A. Schroeder, St. Louis, read a paper on "A Comparison of the Effects of the Rice Diet and a Diet Low in Salt on Arterial Hypertension." Discussed by Drs. David Ayman, Boston; Milton Landsdowne, Chicago; Frederick N. Allen, New York, and Eugene Foldes, New York.

Dr. Kenneth A. Evelyn, Montreal, Canada, read a paper on "The Effect of Sympathectomy on the Blood Pressure Levels of Hypertensive Patients: A Review of Fifteen Years' Experience at the Massachusetts General Hospital." Discussed by Drs. Geza de Takats, Chicago; David Ayman, Boston, and Max M. Peet, Ann Arbor.

SECTION ON PATHOLOGY AND PHYSIOLOGY

Wednesday, June 23—Afternoon

The meeting was called to order at 2 p. m. by the chairman, Dr. Alvin G. Foord, Pasadena, Calif.

Dr. George E. Wakerlin, Chicago, read a paper on "Hypertension." Discussed by Drs. Louis N. Katz, Chicago; R. Sternheimer, Chicago, and George E. Wakerlin, Chicago.

Dr. E. T. Bell, Minneapolis, presented a paper on "Bright's Disease." Discussed by Drs. J. P. Simonds, Chicago; Alvin G. Foord, Pasadena, Calif., and E. T. Bell, Minneapolis.

Dr. Ancel Keys, Minneapolis, read a paper on "Recent Advances in Nutrition." Discussed by Drs. Tom D. Spies, Birmingham, Ala.; Emil Bogen, Olive View, Calif.; Norbert Enzer, Milwaukee, and Ancel Keys, Minneapolis.

Dr. Edward Muntwyler, Brooklyn, N. Y., read a paper on "Clinical Problems in Fluid Balance." Discussed by Drs. W. S. Hoffman, Chicago; D. A. MacFadyen, Chicago, and Edward Muntwyler, Brooklyn, N. Y.

A nominating committee was appointed consisting of Drs. John Paul Quigley, Memphis, chairman; H. J. Corper, Denver, and J. J. Moore, Chicago.

Thursday, June 24—Afternoon

The following officers were elected: chairman, Dr. George E. Wakerlin, Chicago (1 year); vice chairman, Dr. Frank W. Konzelmann, Atlantic City (1 year); secretary, Dr. Edwin F. Hirsch, Chicago (1 year); delegate, Dr. L. W. Larson, Bismarck, N. D. (1 year); alternate, Dr. H. J. Corper, Denver (1 year); representative to Scientific Exhibit, Dr. Alvin G. Foord, Pasadena, Calif.

Dr. H. T. Karsner, Cleveland, read a paper on "Disorders of the Liver." Discussed by Drs. H. P. Popper, Chicago; Richard B. Capps, Chicago; Sheila Sherlock, London, England, and H. T. Karsner, Cleveland.

Dr. Stanley P. Reimann, Philadelphia, read a paper on "Cancer Problems in Practice." Discussed by Drs. Alvin G. Foord, Pasadena, Calif.; John A. Rogers, Chicago; A. J. Carlson, Chicago, and Stanley P. Reimann, Philadelphia.

Dr. J. E. Thomas, Philadelphia, read a paper on "Recent Advances in Gastrointestinal Physiology." Discussed by Drs. A. C. Ivy, Chicago; Heinrich Necheles, Chicago, and J. E. Thomas, Philadelphia.

Dr. Warren O. Nelson, Iowa City, read a paper on "New Developments in Endocrinology." Discussed by Drs. A. J. Carlson, Chicago; S. Soskin, Chicago, and Warren O. Nelson, Iowa City.

Friday, June 25—Afternoon

Dr. Alvin G. Foord, Pasadena, Calif., read the chairman's address, entitled "Embolism and Thrombosis in Coronary Heart Disease."

Dr. Philip R. White, Philadelphia, read a paper on "Hippocrates and the Beanstalk."

Dr. J. K. Frenkel, San Francisco, read a paper on "The Pathogenesis of Toxoplasmosis."

Drs. Lester M. Morrison, Lillian Hall, Albert L. Chaney and William Gonzales, Los Angeles, presented a paper on "Cholesterol Metabolism and Its Relation to Atherosclerosis, Coronary Artery Disease, and Arteriosclerosis." Discussed by Drs. Edwin F. Hirsch, Chicago; George E. Wakerlin, Chicago, and Lester M. Morrison, Los Angeles.

Drs. Harry J. Corper and Maurice L. Cohn, Denver, presented a paper on "The Mechanism of Streptomycin Action in Tuberculosis."

SECTION ON NERVOUS AND MENTAL DISEASES

Wednesday, June 23—Morning

The meeting was called to order at 9 o'clock by the chairman, Dr. A. R. Vonderahe, Cincinnati.

Dr. Robert V. Seliger, Baltimore, read a paper on "Present Day Status of Medical Psychologic Aspects of Alcoholism." Discussed by Drs. Frederick Lemere, Seattle; Howard P. Rome, Rochester, Minn., and Victor Vogel, Lexington, Ky.

Dr. Howard P. Rome, Rochester, Minn., read a paper on "Psychiatry in Internal Medicine." Discussed by Drs. Henry W. Brosin, Chicago and David A. Boyd Jr., Indianapolis.

Drs. Theodore Lidz and John C. Whitehorn, Baltimore, presented a paper on "Psychiatric Problems in a Thyroid Clinic." Discussed by Drs. Frederick P. Moersch, Rochester, Minn., and Theresa F. Benedek, Chicago.

Drs. H. S. Ripley and Stewart G. Wolf, New York, presented a paper on "Analysis of Treatment in a Psychosomatic Clinic." Discussed by Drs. Henry W. Brosin and Roy R. Grinker, Chicago.

Drs. H. C. Modlin, Topeka, Kan., and H. H. Jasper and W. D. Ross, Montreal, Canada, presented a paper on "Psychosomatic Studies in Narcolepsy." Discussed by Drs. Lumen E. Daniels, Denver; Franz G. Alexander and R. P. Mackay, Chicago, and H. G. Modlin, Topeka, Kan.

Drs. David A. Boyd Jr. and Louis W. Nie, Indianapolis, presented a paper on "Congenital Universal Indifference to Pain." Discussed by Drs. Russell N. DeJong, Ann Arbor, Mich.; G. O. Grain, Detroit, and Karl Von Hagen, Los Angeles.

Dr. Douglas Goldman, Cincinnati, Ohio read a paper on "Experience with Electronarcosis." Discussed by Drs. A. R. Vonderahe, Cincinnati, and Philip Wells, Los Angeles.

Thursday, June 24—Morning

The following officers were elected: Francis J. Gerty of Chicago, chairman; Lumen Daniels of Denver, vice chairman; delegate, Hans Reese, Madison, Wis.; alternate delegate, R. F. Finley Gayle, Richmond, Va.; Harry Wilkins, Oklahoma City, member of Neuro-Surgical Board; Fred Moersch, Rochester, Minn., member of Board of Psychiatry and Neurology; A. B. Baker of Rochester, Minn., in charge of exhibits for ensuing year.

A report was given by Dr. Hans Reese as delegate.

Dr. Moersch read a resolution on multiple sclerosis, a resolution pertaining to celebration of centennials and like occasions, and a resolution pertaining to changing the name of the section.

Dr. Paul C. Bucy, Chicago, gave a report of the Neuro-Surgical Board.

The appointment of Dr. Louis Karnosh, Cleveland, to the Board of Psychiatry and Neurology to replace Dr. Wooley, appointed by Dr. Mackay of Chicago during the year, was ratified by the Section.

Dr. Francis Braceland, Rochester, Minn., discussed some of the activities of the American Board of Psychiatry and Neurology.

Dr. A. R. Vonderahe of Cincinnati gave the chairman's address, on "Neuroanatomy and Its Relationship to the Medical Sciences."

Dr. Sam L. Clark of Nashville, Tennessee, read a paper on "Cerebellar Seizures Experimentally Elicited." Discussed by Dr. Paul C. Bucy, Chicago.

Drs. I. S. Wechsler and Sidney W. Gross, New York, presented a paper on "Angiography in the Diagnosis and Treatment of Cerebral Hemorrhage." Discussed by Drs. Percival

Bailey and Roland P. Mackay, Chicago, and George Thompson, Los Angeles.

Dr. Harry F. Dowling, Washington, D. C., read a paper on "The Specific Therapy of Bacterial Infections of the Central Nervous System." Discussed by Drs. Paul S. Rhoads, Chicago; Wesley W. Spink, Minneapolis; William P. Boger, Philadelphia; W. James Gardner, Cleveland, and Percival Bailey, Chicago.

Dr. Russell N. DeJong of Ann Arbor, Michigan, read a paper on "The Nervous System Complications of Diabetes Mellitus with Special Reference to Cerebro-Vascular Changes." Discussed by Drs. A. B. Baker, Minneapolis, Jerome C. Conn, Ann Arbor, Mich., and David Adlersberg, New York.

Drs. Arnold P. Friedman, Charles Brenner and Sidney Carter, New York, read a paper on "The Symptomatic Treatment of Certain Types of Chronic Headaches." Discussed by Dr. Pearce Bailey, Washington, D. C.

FRIDAY, JUNE 25—MORNING

Dr. Lester A. Mount, New York, read a paper on "Congenital Dermal Sinuses as a Cause of Meningitis, Intraspinal Abscess and Intracranial Abscess." Discussed by Drs. Paul C. Bucy, Chicago; A. Earl Walker, Baltimore, and L. A. Mount, New York.

Drs. W. James Gardner and Guy H. Williams, Cleveland, presented a paper on "Interruption of the Sympathetic Nerve Supply to the Brain: Effect on Parkinson's Syndrome." Discussed by Drs. Wilford A. Risteen, Augusta, Ga.; Joshua Spiegel, Chicago; Percival Bailey, Chicago; W. James Gardner, Cleveland, and Guy H. Williams, Cleveland.

Drs. John B. Dynes and James L. Poppen, Boston, presented a paper on "Frontal Lobotomy for Intractable Pain." Discussed by Drs. Y. D. Koskoff, Pittsburgh; William D. Chapman, Boston, Walter Freeman, Washington, D. C.; R. P. Mackay, Chicago, and John B. Dynes, Boston.

Dr. Dean H. Echols, New Orleans, read a paper on "Results of Surgical Treatment of Sciatica After Three to Eight Years." Discussed by Drs. E. G. Grantham, Louisville, Ky.; George S. Baker, Rochester, Minn., and Dean H. Echols, New Orleans.

Drs. Edwin B. Boldry, John E. Adams and Howard A. Brown, of San Francisco, presented a paper on "Scoliosis as a Manifestation of Disease of the Spinal Cord." Discussed by Dr. Henry G. Schwartz, St. Louis.

Drs. Bertram Selverstone and A. K. Solomon, Boston, presented a paper on "Studies of Intracranial Tumors Employing Radioactive Phosphorus: I. Preferential Localization of Radioactive Phosphorus in Cerebral Tumors." Discussed by Drs. Paul C. Bucy and Theodore B. Rasmussen, Chicago, and Bertram Selverstone, Boston.

SECTION ON DERMATOLOGY AND SYPHILOLOGY

WEDNESDAY, JUNE 23—MORNING

The meeting was called to order at 9:10 by the chairman, Dr. Henry E. Michelson, Minneapolis.

Dr. Henry E. Michelson, Minneapolis, read the report of the nominating committee.

Dr. Francis W. Lynch, St. Paul, read his report as representative to the Scientific Exhibit.

Dr. Henry E. Michelson, Minneapolis, read the chairman's address, entitled "Criteria for the Diagnosis of Certain Tuberculoderms."

Dr. Herbert Rattner, Chicago, reported concerning the many difficulties involved in publishing and distributing the *Archives*.

Dr. Carl T. Nelson, New York, read a paper on "The Kveim Reaction in Sarcoidosis." Discussed by Drs. Max Michael, Chamblee, Ga.; John Dalton, Indianapolis; Bernard Appel, Lynn, Mass.; Maurice Oppenheim, Chicago, and Carl T. Nelson, New York.

Drs. Carl W. Laymon and Eugene P. Schoch Jr., Minneapolis, presented a paper on "Histologic Comparison of Micropapular Tuberculid and Rosacea." Discussed by Drs. Marcus R. Caro, Chicago; Marion Sulzberger, New York; Stephen Rothman, Chicago, and Carl W. Laymon, Minneapolis.

Dr. G. A. Grant Peterkin, Edinburgh, Scotland, read a paper on "Textile Dermatitis in Males." Discussed by Drs. John G. Downing, Boston; Effwood C. Weise, Bridgeport, Conn., and G. A. Grant Peterkin, Edinburgh, Scotland.

Dr. George K. Lewis, New York, presented the report of the American Board of Dermatology and Syphilology.

Drs. George L. Waldbott and John J. Shea, Detroit, presented a paper on "Contact Dermatitis of the Hands: Localization as a Means of Causative Diagnosis." Discussed by Drs. Walter C. Herold, Colorado Springs; Stephan Epstein, Marshfield, Wis., and George L. Waldbott, Detroit.

Dr. Bernard H. Winston, Kansas City, Mo., read a paper on "Dermatitis of the Hands Due to Ingested Allergens." Discussed by Drs. John F. Madden, St. Paul; Maurice J. Reuter, Milwaukee; George Andrews, New York; Marion Sulzberger, New York; James M. Flood, Sayre, Pa.; H. V. Allington, Oakland, Calif.; George W. Binkley, Cleveland, and Bernard H. Winston, Kansas City.

Dr. Rudolf L. Baer, New York, read a paper on "Some Practical Aspects of Cross Sensitization in Allergic Eczematous Dermatitis." Discussed by Drs. Stanley F. Hampton, St. Louis; Adolph Rostenberg Jr., Chicago, and Rudolf L. Baer, New York.

THURSDAY, JUNE 24—MORNING

The following officers were elected: chairman, Dr. Anthony C. Cipollaro, New York (1 year); vice chairman, Dr. Michael L. Ebert, Chicago (1 year); secretary, Dr. Clinton W. Lane, St. Louis (1 year); delegate, Dr. Everett C. Fox, Dallas (2 years); alternate, Dr. Leonard Weber, Chicago (2 years); representative to Scientific Exhibit, Dr. Francis W. Lynch, St. Paul (1 year).

The chairman, Dr. Henry E. Michelson, Minneapolis, read a letter from Dr. Paul A. O'Leary, Rochester, Minn., tendering his resignation, effective May 18, 1948, as a member of the American Board of Dermatology, and stated that Dr. D. M. Pillsbury, Philadelphia, had been appointed to take Dr. O'Leary's place and that Dr. Nelson Paul Anderson, Los Angeles, was reappointed to succeed himself.

Dr. Francis W. Lynch, St. Paul, announced that awards had been given for scientific exhibits as follows:

Group I. Honorable Mention to: Dr. Helen Ollendorff Curth, New York, "Cancer and Acanthosis Nigricans."

Group II. Second prize (silver medal): Drs. J. Walter Wilson and Orda A. Plunkett, Los Angeles, "Practical Medical Mycology—Culture and Identification on Fungi as an Office Procedure."

Drs. Francis Senear, Chicago, and George M. Lewis and Frank E. Cormia, New York, presented a paper on "Present Status of Dermatologic Training." Discussed by Drs. Marion Sulzberger, New York, and George M. Lewis, New York.

Dr. Howard Fox, New York, gave the Distinguished Lecture in Dermatology: "Cutaneous Manifestations of Some Tropical Diseases."

On behalf of the Section, Dr. Nelson Paul Anderson, Los Angeles, presented a citation to Dr. Howard Fox, New York, as the first Distinguished Lecturer.

Dr. Everett Lain, Oklahoma City, moved, seconded by Dr. Richard S. Weiss, St. Louis, that a telegram of felicitation be sent to Dr. Oliver S. Ormsby, Chicago, and that Dr. James Herbert Mitchell formulate it.

Dr. John Rauschkolb, Cleveland, announced that Dr. W. T. Corlett, Cleveland, passed away on June 15, 1948, and stated that a suitable obituary would be prepared by the Cleveland group for publication in the *Archives of Dermatology and Syphilology*.

Drs. J. Walter Wilson and Orda A. Plunkett, Los Angeles, presented a paper on "The Culture of Fungi as an Office Procedure." Discussed by Drs. Royal M. Montgomery, New York; William L. Dobes, Atlanta, Ga.; Tibor Benedek, Chicago; James Herbert Mitchell, Chicago; G. H. Curtis, Cleveland; M. C. Zimmerman, Westwood, Calif., and J. Walter Wilson, Los Angeles.

Dr. John F. Wilson, Philadelphia, read a paper on "Manual Epilation in the Treatment of Tinea Capitis." Discussed by Drs. Winfred A. Showman, Tulsa, Okla.; Louis Schwartz, Bethesda, Md.; Tibor Benedek, Chicago; H. V. Allington, Oakland, Calif.; William L. Dobes, Atlanta, Ga.; Loren W. Shaffer, Detroit; J. Walter Wilson, Los Angeles, and John F. Wilson, Philadelphia.

Drs. Lee J. Alexander and Arthur G. Schoch, Dallas, Texas, presented a paper on "Prevention of Syphilis: Treatment of

Contacts During the Incubation Stage with Penicillin in Oil and Beeswax; Bismuth Ethyl Camphorate and Oxophenarsine Hydrochloride." Discussed by Drs. J. R. Heller Jr., Washington, D. C.; Loren W. Shaffer, Detroit; A. J. von Werssowetz, Chattanooga, Tenn.; H. M. Robinson, Philadelphia; G. W. Binkley, Cleveland; Theodore Rosenthal, New York; Dudley Smith, Charlottesville, Va.; Samuel J. Zakon, Chicago, and Lee J. Alexander, Dallas.

Drs. Maurice T. Fliegelman, Charles F. Wilkinson Jr., Eugene A. Hand and Arthur C. Curtis, Ann Arbor, Mich., presented a paper on "The Genetics of Xanthoma Tuberosum Multiplex." Discussed by Drs. Hamilton Montgomery, Rochester, Minn.; John Garb, New York; D. Adlersberg, New York; David Kahn, Lansing, Mich., and Charles F. Wilkinson, Ann Arbor, Mich.

Drs. Sture A. Johnson, Madison, Wis., and Harold F. Falls, Ann Arbor, Mich., presented a paper on "Ehlers-Danlos Syndrome." Discussed by Drs. Norman Tobias, St. Louis; Francesco Ronchese, Providence, R. I.; F. A. Ellis, Baltimore; Kurt Weiner, Milwaukee, and Sture A. Johnson, Madison Wis.

FRIDAY, JUNE 25—MORNING

Dr. W. Howard Hailey, Atlanta, Ga., read a paper on "Pruritis Ani et Vulvae." Discussed by Drs. G. A. Grant Peterkin, Edinburgh, Scotland; James Herbert Mitchell, Chicago; Stephen Rothman, Chicago; Adolph Rostenberg Jr., Chicago, and W. Howard Hailey, Atlanta, Ga.

Dr. W. R. Huebler, Youngstown, Ohio, read a paper on "Management of the Emotional Factors in Localized Neurodermatitis." Discussed by Drs. Donald J. Wilson, Omaha; D. E. H. Cleveland, Vancouver, B. C., and W. R. Huebler, Youngstown, Ohio.

Drs. A. H. Gottesman and Karl A. Menninger, Topeka, Kan., presented a paper on "The Dermatologist and the Psychiatrist." Discussed by Drs. John H. Lamb, Oklahoma City; S. William Becker, Chicago, and Karl A. Menninger, Topeka, Kan.

Drs. J. Lamar Callaway, E. C. Hamblen, and Austin Salmon, Durham, N. C., presented a paper on "Essential Hirsutism: Dermatologic and Endocrinologic Considerations." Discussed by Drs. Herbert Rattner, Chicago; G. W. Bissell, Buffalo; John H. Lamb, Oklahoma City; Maurice Oppenheim, Chicago, and J. Lamar Callaway, Durham, N. C.

Drs. Israel Zeligman and Max Baum, Baltimore, presented a paper on "Porphyric Bullous Dermatosis." Discussed by Drs. Louis A. Brunsting, Rochester, Minn.; George H. Curtis, Cleveland, and Israel Zeligman, Baltimore.

Drs. J. Lowry Miller, Meyer H. Slatkin and Balbina A. Johnson, New York, presented a paper on "Local Treatment with Bacitracin." Discussed by Drs. James R. Driver, Cleveland; William R. Love, Dayton, Ohio, and J. Lowry Miller, New York.

Dr. Frederick T. Becker, Duluth, Minn., read a paper on "Herpes Zoster Ophthalmicus: Its Therapy with Convalescent Blood." Discussed by Drs. O. S. Philpott, Denver; James W. Burks Jr., New Orleans, and Frederic T. Becker, Duluth, Minn.

SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

WEDNESDAY, JUNE 23—AFTERNOON

A joint meeting was held with the Section on General Practice. The proceedings are reported in the minutes of that Section.

THURSDAY, JUNE 24—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr. Robert H. Riley, Baltimore.

The chairman called for the report of the Nominating Committee, which was given by Dr. E. L. Stebbins, Baltimore, as follows: chairman, Dr. Oscar A. Sander, Milwaukee; vice chairman, Dr. C. N. Neupert, Madison, Wis. On motion duly made and seconded, the report of the Nominating Committee was accepted and the nominees elected.

Dr. Robert H. Riley, Baltimore, delivered the chairman's address, entitled "The Health Department and the Food of the People."

The chairman then called on Dr. E. L. Stebbins, Baltimore, for the discussion of a proposal for a specialty board. On motion made by Dr. Walter L. Bierring, Des Moines, Iowa, seconded by Dr. Felix Underwood, Mississippi, the following resolution was adopted unanimously:

That the Section on Preventive and Industrial Medicine and Public Health of the American Medical Association hereby officially approve the organization of the American Board of Preventive Medicine and Public Health for the purpose of certifying physicians in the specialty of preventive medicine and public health, and that this section be represented on the American Board of Preventive Medicine and Public Health by three members.

Drs. Alvan L. Barach, G. F. Herben, J. H. Cullen and A. Chesmore Eastlake Jr., New York, presented a paper on "Clinical Recovery in Advanced Pulmonary Tuberculosis Induced by Total Lung Rest in the Immobilizing Lung Chamber." Discussed by Dr. G. L. Bellis, Winnebago, Wis.

Dr. Alan R. Moritz, Boston, read a paper on "The Cause of Unexpected Deaths from Disease in Different Age Groups."

Dr. Herbert S. Breyfogle, Richmond, Va., read a paper on "The New Virginia Coroner Law."

Dr. Edward R. Schlesinger and I. Jay Brightman, Albany, N. Y., presented a paper on "A Public Health Approach to the Problem of Home Accidents During the Preschool Period."

FRIDAY, JUNE 25—MORNING

A joint meeting was held with the Section on Radiology. The proceedings are reported in the minutes of that Section.

SECTION ON UROLOGY

WEDNESDAY, JUNE 23—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr. Reed M. Nesbit, Ann Arbor, Mich.

Dr. Eugene B. Vickery, New Orleans, read a paper on "Effect of Nephrectomy on Hypertension in Unilateral Renal Disease."

Dr. Rex E. Van Duzen, Dallas, Texas, read a paper on "Lower Nephron Nephrosis."

These two papers were discussed by Drs. Clarence V. Hodges, Baltimore; Harry Culver, Chicago; William Herbst, Washington, D. C., and Frederick Foley, St. Paul.

Drs. Fred Z. Havens and Albert S. Black, Rochester, Minn., presented a paper on "The Treatment of Hypospadias." Discussed by Drs. C. D. Creevy, Minneapolis; Frederick Foley, St. Paul, and Meredith Campbell, New York.

Dr. John E. Dees, Durham, N. C., presented a paper on "The End Results of Endovesical Treatment of Tumors of the Bladder."

Dr. Rubin H. Flocks, Iowa City, presented a paper on "The Preoperative and Postoperative Management of Patients Undergoing Ureteral Intestinal Anastomosis."

These two papers were discussed by Drs. James T. Priestley, Rochester, Minn.; Frederick Schacht, Chicago; Harold MacDonald, Atlanta, Ga.; Max Sauer, Buffalo, and J. C. Kimbrough, Washington, D. C.

Drs. Edward W. Campbell and G. J. Gislason, Philadelphia, presented a paper on "Urologic Complications Following Abdominal Perineal Resection."

Drs. William N. Wishard Jr. and Myron Nourse, Indianapolis, presented a paper on "Vesical Calculus, with Report of a Gigantic Stone in the Female Bladder."

These two papers were discussed by Drs. George H. Ewell, Madison, Wis., and Temple Ainsworth, Jackson, Miss.

THURSDAY, JUNE 24—AFTERNOON

Dr. Clarence G. Bandler, New York, read the report of the American Board of Urology. Dr. Edgar Burns, New Orleans, was elected to fill the unexpired term of Dr. E. Granville Crabtree, deceased, as a representative of the Section on the Board.

Dr. Grayson Carroll, St. Louis, read the report of the Nominating Committee.

The following officers were elected: chairman, Dr. Hamilton McKay, Charlotte, N. C.; vice chairman, Dr. Norris J. Heckel, Chicago; secretary, Dr. Edward N. Cook, Rochester, Minn.; delegate, Dr. Roy Henline, New York; alternate, Dr. J. J. Crane, Los Angeles; representatives to Scientific Exhibit:

Drs. John Morrissey, New York, chairman; Roger Barnes, Los Angeles; Earl E. Ewert, Boston, and John Dees, Durham, N. C.

On motion by Dr. Clarence G. Bandler, New York, and severally seconded, the nominees to the various offices were declared elected unanimously.

Dr. Reed Nesbit, Ann Arbor, Mich., read the chairman's address, entitled, "A Present-Day Rationale for the Treatment of Urinary Tuberculosis."

Dr. George E. Slotkin, Buffalo, read a paper on "Urinary Tuberculosis: Its Treatment by Synergistic Therapy."

Drs. Donald D. Albers and Gershom J. Thompson, Rochester, Minn., read a paper on "Carcinoma Cells in Prostatic Secretion." Discussed by Dr. Russell D. Herrold, Chicago.

Dr. O. A. Nelson, Seattle, read a paper on "Modified Technic in Suprapubic Prostatectomy."

Drs. Francis P. Twinem and Francis A. Beneventi, New York, presented a paper on "Retropubic Prostatectomy."

Dr. Daniel R. Higbee, Denver, read a paper on "Status of Perineal Prostatectomy Today."

Drs. John A. Taylor and Charles H. Place, New York, presented a paper on "An Evaluation of Transurethral Resection for Prostatic Hypertrophy."

These four papers were discussed by Drs. James Peters, Melbourne, Australia; Grayson Carroll, St. Louis; Vincent J. O'Conor, Chicago; Nels F. Ockerblad, Kansas City; John H. Morrissey, New York; Abraham Fleischman, Des Moines, Iowa; Henry Brown, Tulsa, Okla.; J. C. Kimbrough, Washington, D. C.; Thomas D. Moore, Memphis, Tenn., and John Ormond, Detroit.

FRIDAY, JUNE 25—AFTERNOON

Drs. Willard E. Goodwin and Robert D. Sloan, Baltimore, presented a paper on "Renal Vascular Shunt." Discussed by Drs. Howard M. Odel, Rochester, Minn.; William J. McMartin, Omaha, and W. W. Scott, Baltimore.

Dr. Earl E. Ewert, Boston, read a paper on "Muscle Transplant for Neurogenic Incontinence."

Drs. Roger W. Barnes and Ivan E. Martin, Los Angeles, presented a paper on "Repair of Vesicovaginal Fistula."

Drs. John K. Ormond, John W. Best and Milton E. Klinger, Detroit, presented a paper on "Vesicointestinal Fistulas."

These three papers were discussed by Drs. Samuel L. Raines, Memphis, Tenn., and M. J. Dabney, Birmingham, Ala.

Dr. A. E. Goldstein, Baltimore, presented a paper on "Studies in Polycystic Renal Disease."

Dr. Robert W. Hunt, New York, presented a paper on "Differential Diagnosis and Treatment of Massive Retroperitoneal Tumors."

These two papers were discussed by Drs. Norborne B. Powell, Houston, Texas, and Vincent O'Conor, Chicago.

SECTION ON ORTHOPEDIC SURGERY

WEDNESDAY, JUNE 23—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr. J. Warren White, Greenville, S. C.

Dr. Rex H. Diveley, Kansas City, Mo., then took charge of the meeting to conduct the Symposium on Foot Disabilities.

Dr. Dudley J. Morton of New York read a paper on "Congenital Foot Variations: Their Influence in Clinical Disorders." Discussed by Dr. R. I. Harris, Toronto, Canada.

Dr. J. H. Kite, Atlanta, Ga., read a paper on "Treatment of Congenital Deformities of the Feet in Infancy."

Dr. William T. Green, Boston, read a paper on "Treatment of Functional Disorders of the Foot in Childhood." Discussed by Dr. H. Relton McCarroll of St. Louis.

Drs. Arthur L. Heath and R. Plato Schwartz, Rochester, N. Y., presented a paper on "Conservative Treatment of Functional Disorders of the Foot in the Adolescent and Adult." Discussed by Dr. Philip Lewin, Chicago.

Dr. Halford Hallock, New York, read a paper on "Operative Treatment of Foot Imbalance in the Adolescent."

Dr. Charles W. Peabody, Detroit, read a paper on "Operative Treatment of Deformities of the Feet in Adults." Discussed by Dr. Earl D. McBride, Oklahoma City.

A general discussion of all papers was given by Dr. J. Albert Key of St. Louis; this was followed with remarks by Chairman White, Dr. Dudley J. Morton of New York, Dr. William T. Green, Boston, Dr. Arthur L. Heath, Rochester, N. Y., and Dr. Charles Peabody, Detroit.

THURSDAY, JUNE 24—AFTERNOON

The following officers were elected: chairman, Dr. David M. Bosworth, New York; vice chairman, Dr. Walter P. Blount, Milwaukee; secretary, Dr. Joseph S. Barr, Boston; delegate, Dr. Edward L. Compere, Chicago; alternate, Dr. Harold A. Sofield, Chicago; nominee, Board of Orthopedic Surgery, Dr. Ralph K. Ghormley, Rochester, Minn.; alternate, Dr. Mather Cleveland, New York, Orthopedic Fellow in Charge of Orthopedic Exhibits, Dr. Tom Outland, Elizabethtown, Pa.

Dr. Edward L. Compere, Chicago, delegate, made a report on the activities of the House of Delegates at this meeting.

Dr. Boardman M. Bosworth, Bronxville, N. Y., read a paper on "Complete Acromioclavicular Dislocation." Discussed by Drs. Manley A. Page, Chicago; Walter P. Blount, Milwaukee; Rollo Stewart, Minneapolis; H. A. Brittain, Norwich, England; Marshall Urist, Chicago, and David M. Bosworth, New York.

Drs. Frank E. Stinchfield and Robert Carroll, New York, presented a paper on "Vitallium Cup Arthroplasty of the Hip Joint: Study of End Result." Discussed by Drs. Harold B. Boyd, Memphis, Tenn., and Paul R. Lipscomb, Rochester, Minn.

Dr. J. Warren White, Greenville, S. C., read the chairman's address, on "Sacrifice of Bone Length in Reconstruction Procedures."

Drs. Charles S. Wise, Washington, D. C., and Benjamin Castleman and Arthur L. Watkins, Boston, presented a paper on "Effect of Diathermy (Short Wave and Microwave) on Bone Growth in the Albino Rat." Discussed by Drs. Edward L. Compere, Chicago; Frank H. Krusen, Rochester, Minn., and Joseph S. Barr, Boston.

Drs. Sten Friberg and Carl Hirsch, Stockholm, Sweden, presented "Some Pathologic and Clinical Aspects of Low Back Pain."

FRIDAY, JUNE 25—AFTERNOON

Dr. Russell F. Sullivan, Brookline, Mass., read a paper on "Intracapsular Fracture of the Neck of the Femur in Children." Discussed by Drs. Harold A. Sofield and Robert T. McElvenny, Chicago.

Dr. H. A. Brittain, Norwich, England, read a paper on "Architectural Principles in Arthrodesis."

Dr. E. O. Geckeler, Philadelphia, read a paper on "Comminuted Fractures of the Os Calcis: Choice of Treatment." Discussed by Dr. Ivar Palmar, Stockholm, Sweden.

Dr. I. S. McReynolds, Houston, Texas, read a paper on "Radiocarpal Arthrodesis of the Wrist Using Iliac Bone Grafts." Discussed by Drs. Charles N. Pease, Chicago; William H. Bickel, Rochester, Minn., and James Bateman, Toronto, Canada.

Dr. Frederick L. Liebolt, New York, read a paper on "The Use of Capsulectomy and Arthroplasty for Limitation of Finger Motion." Discussed by Drs. James P. Cole, Buffalo; William G. Rhorer, Long Beach, Calif., and J. Albert Key, St. Louis.

Drs. Edward J. Ferrarone and Garry de N. Hough Jr., Springfield, Mass., presented a paper on "Study of End Result of Two Hundred Cases of Triple Arthrodesis of the Foot." Discussed by Drs. E. Harlan Wilson, Columbus, Ohio, and John R. Norcross, and E. W. Ryerson, Chicago.

SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

WEDNESDAY, JUNE 23—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr. Sara M. Jordan, Boston.

Drs. G. Gill Richards and Kenneth A. Crockett, Salt Lake City, presented a paper on "Aren't We Still Missing Many Cases of Hiatus Hernia?"

Dr. Irving B. Brick, Washington, D. C., read a paper on "Incidence of Hiatus Hernia and Associated Lesions Diagnosed by Roentgen Ray."

Drs. Arthur M. Master, Simon Dack, Arthur Grishman and Jacob M. Stone, New York, presented a paper on "Differential

Diagnosis of Diaphragmatic Hernia and Coronary Artery Disease."

These three papers were discussed by Drs. Ralph C. Brown, Chicago; Manfred Kraemer, Newark, N. J.; Donovan C. Browne, New Orleans; Kenneth A. Crockett, Salt Lake City; Irving B. Brick, Washington, D. C., and Arthur M. Master, New York.

Drs. Henry J. Tumen and Edwin M. Cohn, Philadelphia, presented a paper on "Heartburn." Discussed by Drs. David J. Sandweiss, Detroit; John H. Fitzgibbon, Portland, Ore.; Anthony J. Bassler, New York; Sidney A. Portis, Chicago; Hyman I. Goldstein, Camden, N. J., and Henry J. Tumen, Philadelphia.

Drs. David Adlersberg and Ernst Hammerschlag, New York, presented a paper on "Studies on the Mechanism of Postgastrectomy Syndrome." Discussed by Drs. Ralph Colp, New York; Joseph B. Kirsner, Chicago; Otto Porges, Chicago; Thomas E. Machella, Philadelphia; H. Necheles, Chicago; Hyman I. Goldstein, Camden, N. J., and David Adlersberg, New York.

Drs. Malcolm Block and Henry C. Bryant, Ann Arbor, Mich., presented a paper on "The Diagnosis of Gastric Neoplasm by Cytologic Examination of Gastric Secretions." Discussed by Drs. Warren C. Hunter, Portland, Ore.; Frank Fremont-Smith, Boston, and Malcolm Block, Ann Arbor, Mich.

Drs. William D. Gambill, John E. Fisher, Bernard D. Rosenak and Rollin H. Moser, Indianapolis, presented a paper on "A Study of the Routine Use of Screening for the Detection of Liver Disease."

Drs. Leon Schiff, S. A. Safdi, R. C. Cogswell, C. W. Kumpe, D. F. Richfield and E. A. Gall, Cincinnati, presented a paper on "Needle Biopsy of the Liver."

These two papers were discussed by Drs. Hugh R. Butt, Rochester, Minn.; E. E. Mandel, Chicago; Frederick W. Hoffbauer, Minneapolis; Hans P. Popper, Chicago; Sheila Sherlock, London, England; William D. Gambill, Indianapolis, and Leon Schiff, Cincinnati.

Thursday, June 24—Morning

The following officers were elected: chairman, Dr. William H. Daniel, Los Angeles; vice chairman, Dr. Russell S. Boles, Philadelphia; secretary, Dr. Grant H. Laing, Chicago; delegate, Dr. Louis A. Buie, Rochester, Minn.; alternate, Dr. Walter A. Fansler, Minneapolis.

Dr. Sara M. Jordan, Boston, read the chairman's address, entitled "Correlation of Gastroenterology and Surgery."

Dr. Milton Plotz, Brooklyn, read a paper on "Possible Hazards of Diets High in Cholesterol in Coronary Disease." Discussed by Drs. Louis N. Katz and Walter L. Palmer, Chicago, and Milton Plotz, Brooklyn.

Dr. Garnet W. Ault, Washington, D. C., read a paper on "The Surgical Treatment of Ulcerative Colitis." Discussed by Drs. Clarence Dennis, Minneapolis; Joseph Bank, Phoenix, Ariz.; Joseph B. Kirsner, Chicago, and Garnet W. Ault, Washington, D. C.

Dr. Thomas E. Machella, Philadelphia, read a paper on "Treatment of Idiopathic Ulcerative Colitis by Means of a Medical Ileostomy and Orally Administered Protein Hydrolysate Solution." Discussed by Drs. T. Grier Miller, Philadelphia; Sidney A. Portis, Chicago; Hyman I. Goldstein, Camden, N. J.; Manfred Kraemer, Newark, N. J., and Thomas E. Machella, Philadelphia.

Drs. Malcolm R. Hill, Carroll S. Small and Lee Richards, Los Angeles, presented a paper on "A Study of the Development of Anal Ducts and Glands, With Particular Reference to the Pathogenesis of Anorectal Disease." Discussed by Drs. Claude C. Tucker, Wichita, Kan.; J. P. Nesselrod, Evanston, Ill.; Edward Levy, New York, and Malcolm R. Hill, Los Angeles.

Drs. Emil Granet, M. B. Kagan and Cyril Solomon, New York, presented a paper on "Lymphomas of the Anorectum." Discussed by Drs. Walter A. Fansler, Minneapolis; Claude C. Tucker, Wichita, Kan., and Emil Granet, New York.

Drs. Elmer H. Loughlin and Samuel H. Spitz, Brooklyn, presented a paper on "The Diagnosis of Intestinal Helminth Infections." Discussed by Drs. Norman R. Stoll, Princeton, N. J.; Donovan C. Browne, New Orleans, and Elmer H. Loughlin, Brooklyn.

Drs. John R. Hill and Louis A. Buie, Rochester, Minn., presented a paper on "Polypoid Lesions of the Terminal Portion of the Colon with Special Relationship to Fulguration." Discussed by Drs. Martin S. Kleckner, Allentown, Pa., and John R. Hill, Rochester, Minn.

Friday, June 25—Morning

A joint meeting was held with the Section on Surgery, General and Abdominal. The proceedings are reported in the minutes of that section.

SECTION ON RADIOLOGY

Wednesday, June 23—Morning

The meeting was called to order at 9:10 o'clock by the chairman, Dr. W. Walter Wasson, Denver.

Dr. U. V. Portmann and Dr. E. C. Ernst, as delegate and alternate, respectively, were approved to represent the Section at the International Congress of Radiology in London in 1950.

Dr. W. Walter Wasson, Denver, read the chairman's address, entitled "What Further Contributions Can Radiology Make to Medicine?"

Dr. Lee A. Hadley, Syracuse, N. Y., read a paper on "Intervertebral Foramen Studies." Discussed by Dr. L. Henry Garland, San Francisco, and Dr. Henry Briggs, East Orange, N. J.

Dr. William Snow, New York, read a paper on "A Basic Analysis of the Obstetric Pelvis by Roentgen Study." Discussed by Dr. J. P. Greenhill, Chicago; Dr. Howard P. Doub, Detroit, and Dr. Ross Golden, New York.

Dr. Charles T. Dotter, New York, read a paper on "Angiocardiographic Visualization of the Pulmonary Artery in Health and Disease." Discussed by Dr. Harry M. Weber, Rochester, Minn.; Dr. Leo Rigler, Minneapolis, and Dr. J. E. Miller, Dallas, Texas.

Dr. Maurice Lenz, New York, read a paper on "Lymphosarcoma: Its Diagnosis and Treatment." Discussed by Dr. Edward L. Jenkinson, Chicago; Dr. T. Leucutia, Detroit; Dr. Ellis Berven, Stockholm, Sweden; Dr. William Klein, New Brunswick, N. J., and Dr. David S. Dann, Kansas City, Mo.

Dr. Ellis Berven, Stockholm, Sweden, read a paper on "Treatment of Malignant Tumors of the Maxillary Antrum." Discussed by Dr. O. E. Van Alyea, Chicago.

Thursday, June 24—Morning

The following officers were elected: chairman, Harry M. Weber, Rochester, Minn.; vice chairman, U. V. Portmann, Cleveland; Secretary, Paul Hodges, Chicago; delegate, B. R. Kirklin, Rochester, Minn.; alternate, E. P. Pendergrass, Philadelphia; representative of the Section on the American Board of Radiology, E. L. Jenkinson, Chicago.

Dr. Juliette Baud, Paris, France, read a paper on "Treatment of Stage I Carcinoma of the Cervix by Intracavitary Radium: Five, Ten and Fifteen Year End Results." Discussed by Drs. Harry H. Bowing, Rochester, Minn., and E. C. Ernst, St. Louis.

Dr. Constance A. P. Wood, London, England, read a paper on "Some Factors Influencing the Response of Cancer of the Mouth and Throat to Radiation." Discussed by Drs. Douglas Quick, New York; Charles L. Martin, Dallas, Texas, and B. W. Windeyer, London, England.

Dr. Francois Baclesse, Paris, France, read a paper on "Roentgen Therapy of Cancer of the Hypopharynx." Discussed by Dr. Juan A. del Regato, Columbia, Mo., and Dr. Maurice Lenz, New York.

Sir Stanford Cade, London, England, read a paper on "Treatment and Results in Cancer of the Breast." Discussed by Drs. U. V. Portmann, Cleveland; Robert J. Reeves, Durham, N. C.; Henry Ullmann, Santa Barbara, Calif.; Robert S. Newell, San Francisco, and Constance A. P. Wood, London, England.

Dr. B. W. Windeyer, London, England, read a paper on "The Present Position of Radiotherapy in Medical Practice." Discussed by Dr. Robert R. Newell, San Francisco, and Dr. Frederick W. O'Brien, Boston.

FRIDAY, JUNE 25—MORNING

The Section met jointly with the Section on Preventive and Industrial Medicine and Public Health. The meeting was called to order by W. Walter Wasson, Denver, chairman of the Section.

Dr. Willard F. Machle, New York, read a paper on "Chemical and Clinical Aspects of Beryllium."

Dr. Arthur J. Vorwald, Saranac, N. Y., read a paper on "Pathologic Aspects of Beryllium."

Dr. Stanley A. Wilson, Salem, Mass., read a paper on "Radiologic Aspects of Beryllium."

Dr. Walter M. Anderson, Lompoc, Calif., read a paper on "Clinical Aspects, Diatomaceous Earth."

Dr. William H. Carnes, Baltimore, read a paper on "Pathologic Aspects, Diatomaceous Earth."

Dr. Reginald H. Smart, Los Angeles, read a paper on "Radiologic Aspects, Diatomaceous Earth."

Dr. C. M. Jephcott, Toronto, Canada, read a paper on "Chemical and Physical Factors, Bauxite (Shaver's Disease)."

Dr. A. R. Riddell, Toronto, Canada, read a paper on "Pathologic Aspects, Bauxite (Shaver's Disease)."

Dr. C. G. Shaver, Niagara, Canada, read a paper on "Clinical and Radiologic Aspects, Bauxite (Shaver's Disease)."

A panel discussion and question and answer period was held, with audience participation, with Dr. Arthur J. Vorwald, Saranac, N. Y., as moderator, and the contributors to the joint program as speakers.

SECTION ON ANESTHESIOLOGY

WEDNESDAY, JUNE 23—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr. Ralph M. Tovell, Hartford, Conn.

Drs. Henry S. Ruth, Haverford, Pa., and Frederick P. T. Haugen, Philadelphia, presented a "Preliminary Report of Committee on Operative Mortality."

Dr. Ralph M. Tovell, Hartford, Conn., read the chairman's address, entitled "Anesthesiology in the Veterans Administration."

Dr. Henry S. Ruth, Haverford, Pa., reported briefly as delegate.

Dr. Paul M. Wood, New York, read a paper on "The Functions of the American Board of Anesthesiology, Past, Present and Future." Discussed by Dr. Philip D. Woodbridge, Reading, Pa.

Drs. John J. Bonica, Tacoma, Wash., Daniel C. Moore, Seattle, and Morton Orlov, Tacoma, Wash., presented a paper on "Brachial Plexus Block Anesthesia." Discussed by Drs. Robert L. Patterson, Pittsburgh; W. Allen Conroy, Chicago; Daniel C. Moore, Seattle, and John J. Bonica, Tacoma, Wash.

THURSDAY, JUNE 24—AFTERNOON

The following officers were elected: chairman, Walter C. Metz, Denver; vice chairman, Urban Eversole, Boston; delegate, Henry S. Ruth, Haverford, Pa.; alternate, R. J. Whitacre, East Cleveland, Ohio; representative to Scientific Exhibit, Harold Bishop, Valhalla, N. Y.; chairman, Committee on Operative Mortality, Frederick P. T. Haugen, Philadelphia; committee members, J. E. Remlinger, Evanston, Ill., and Henry S. Ruth, Haverford, Pa.

Dr. Albert Faulconer Jr., Rochester, Minn., read a paper on "An Acoustic Gas Analyser for Research in Anesthesiology." Discussed by Dr. Charles D. Anderson and Dr. Mary Karp, Chicago.

Drs. Jane E. Denton, O. H. Strauss and H. K. Beecher, Boston, presented a paper on "A Clinical Appraisal of Methadon ('Amidone') and Its Isomers." Discussed by Lieut. Scott Whitehouse, (MC) USNR; Major Charles H. Mitchell, Medical Corps, United States Army and Dr. Henry K. Beecher, Boston.

Dr. K. K. Keown, Philadelphia, read a paper on "Anesthetic Complications During and Following Chest Surgery." Discussed by Drs. W. O. McQuiston, Peoria, Ill.; Dr. Ansel M. Caine, New Orleans, and Dr. Ralph M. Tovell, Hartford, Conn.

Drs. H. A. Bennett, Oklahoma City, and S. C. Cullen, Iowa City, presented a paper on "The Effects of Various Methods of Premedication and Technics of Anesthesia as Related to the Minute Volume Exchange." Discussed by Dr. Curtiss B. Hickcox, Philadelphia; Dr. Paul H. Lorhan, Mission, Kan.; Dr. Philip Woodbridge, Reading, Pa.; Dr. E. M. Papper, New York; Dr. Stuart C. Cullen, Iowa City, and Dr. Ivan B. Taylor, Detroit.

Dr. G. W. Curry, Cleveland, read a paper on "Caudal Sympathetic Block: A Comparison with Lumbar Sympathetic Block." Discussed by Dr. Ivan B. Taylor, Detroit; Dr. Stuart C. Cullen, Iowa City, and Dr. Bruce Anderson, Oakland, Calif.

FRIDAY, JUNE 25—AFTERNOON

Dr. J. L. Bollman, Rochester, Minn., read a paper on "Laboratory Studies with Radioactive Pentothal." Discussed by Dr. Richard K. Richards, Chicago, and Dr. Edward B. Tuohy, Washington, D. C.

Dr. Bruce M. Anderson, Oakland, Calif., read a paper on "Observations on the Use of Pentothal Sodium in Presence of Hepatic Damage." Discussed by Drs. W. Allen Conroy, and Richard K. Richards, Chicago; Dr. J. L. Bollman, Rochester, Minn., and Dr. Huberta M. Livingstone, Chicago.

Drs. L. S. Goodman, H. O. Brown, Mark Nickerson and S. M. Smith, Salt Lake City, read a paper on "Dibenamine Protection Against Cyclopropane Arrhythmias; Clinical Study with Continuous Electrocardiographic Recordings." Discussed by Drs. A. E. Rapoport, Chicago, and R. J. Whitacre, East Cleveland, Ohio.

SECTION ON GENERAL PRACTICE

WEDNESDAY, JUNE 23—AFTERNOON

A joint meeting was held with the Section on Preventive and Industrial Medicine and Public Health. The meeting was called to order at 2 o'clock by the chairman, Dr. Eric A. Royston, Los Angeles.

Dr. Leonard Greenburg, New York, read a paper on "Diagnosis and Treatment of Occupational Metal Poisoning."

Dr. Elston L. Belknap, Milwaukee, read a paper on "Lead: The Differential Diagnosis of Lead Poisoning; Accepted Laboratory Criteria."

Dr. William C. Wilentz, Perth Amboy, N. J., read a paper on "The Treatment of Lead Poisoning (Should One Attempt to 'Store Lead' or to 'Delead'?)."

Dr. John H. Foulger, Wilmington, Del., read a paper on "The Industrial Solvents: Their Physiologic Effect."

Dr. Rex H. Wilson, Akron, Ohio, read a paper on "Diagnosis and Treatment."

Dr. L. E. Hamlin, Chicago, read a paper on "The Pneumoconioses: Which Industrial Dusts Are Inert? Which are Harmful? Why?"

Dr. N. P. Anderson, Los Angeles, read a paper on "Common Occupational Skin Disease."

There followed a panel discussion and question and answer period, with audience participation, with Dr. R. T. Johnstone, Los Angeles, as moderator, and the contributors to the joint program, and Oscar A. Sander, Milwaukee, as speakers.

THURSDAY, JUNE 24—AFTERNOON

The following officers were elected: chairman, Dr. Winfred B. Harm, Detroit; vice chairman, Dr. Milton B. Casebolt, Kansas City, Mo.; secretary, Dr. Thomas E. Robinson, Salt Lake City; delegate, Dr. Paul A. Davis, Akron, Ohio; alternate, Dr. L. C. Burwell, Los Angeles.

Dr. Eric A. Royston, Los Angeles, read the chairman's address, entitled "The Renaissance of the General Practitioner."

Dr. Marion S. DeWeese, Ann Arbor, Mich., read a paper on "Extraocular Malignant Melanoblastoma: A Clinical Study." Discussed by Drs. S. William Becker, Chicago, and Marion S. DeWeese, Ann Arbor, Mich.

Dr. Bruce H. Douglas, Detroit, read a paper on "The Private Physician and Preventive Medicine." Discussed by Dr. Paul A. Davis, Akron, Ohio.

Dr. Lawrence T. Post, St. Louis, read a paper on "The Diagnostic Significance of Failing Vision." Discussed by Drs. Paul O. Hageman, St. Louis, and Dr. Lawrence T. Post, St. Louis.

Drs. Frank N. Allan and Manuel Kaufman, Boston, presented a paper on "The Nervous Factor in General Practice." Discussed by Dr. John B. Dynes, Boston.

FRIDAY, JUNE 25—AFTERNOON

Dr. Philip Thorek, Chicago, read a paper on "The Do's and Don'ts of the Acute Abdomen." Discussed by Drs. John Van Probaska, Chicago; Joseph B. Kirsner, Chicago, and Philip Thorek, Chicago.

Dr. S. Allen Wilkinson, Boston, read a paper on "The Present Status of the Peptic Ulcer Problem." Discussed by Drs. Wingate M. Johnson, Winston-Salem, N. C., and S. Allen Wilkinson, Boston.

Dr. Richard Z. Query, Jr., Charlotte, N. C., read a paper on "Rheumatoid Spondylitis: Its Early Diagnostic Features and Management." Discussed by Drs. Edward F. Rosenberg, Chicago; Richard D. Smith, Philadelphia, and Richard Z. Query Jr., Charlotte, N. C.

Drs. William P. Boger and Harrison F. Flippin, Philadelphia, presented a paper on "The Increase and Prolongation of Penicillin Plasma Concentration." Discussed by Drs. Wallace E. Herrell, Rochester, Minn., and William P. Boger, Philadelphia.

Drs. William L. Proudfit and A. Carlton Ernstene, Cleveland, presented a paper on "Diagnosis of Coarctation of the Aorta." Discussed by Drs. O. T. Clagett, Rochester, Minn., and William L. Proudfit, Cleveland.

Dr. Edward T. Tyler, Los Angeles, read a paper on "The Use and Misuse of Endocrine Therapy in Sterility." Discussed by Dr. Willard O. Thompson, Chicago.

SECTION ON MISCELLANEOUS TOPICS

Session on Allergy

WEDNESDAY, JUNE 23—MORNING

The meeting was called to order at 9:15 o'clock by the chairman, Dr. Francis M. Rackemann, Boston.

Dr. Rackemann gave the chairman's address.

Dr. Frank A. Simon, Louisville, Ky., read a paper on, "Some Basic Facts and Problems of Clinical Allergy." Discussed by Dr. Jiminez Diaz of Madrid, Spain.

Dr. F. B. Schutzbank, Tucson, Ariz., read a paper on "Climatotherapy in the Treatment of Allergic Diseases." Discussed by Drs. O. E. Egbert, El Paso, Texas; Marion B. Sulzberger, New York; Leon Unger, Chicago; Stanley Hampton, St. Louis, and J. A. Rudolph, Miami Beach, Fla.

Dr. Lewis Webb Hill, Boston, read a paper on "An Evaluation of Therapy in Infantile Eczema." Discussed by Dr. A. V. Stoesser, Minneapolis.

Dr. W. B. Sherman, New York, read a paper on "Allergy to Drugs." Discussed by Drs. Marion Sulzberger, New York; Howard Osgood, Buffalo; Theodore Squier, Milwaukee, and J. A. Rudolph, Miami Beach, Fla.

Drs. Gustave J. Dammin and Samuel C. Bukantz, St. Louis, presented a paper on "Immunologic and Morphologic Alterations in Hypersensitive States." Discussed by Dr. Samuel M. Feinberg, Chicago.

Dr. John M. Sheldon, Ann Arbor, Mich., read a paper on "The Use of Intravenous Fluids in Bronchial Asthma." Discussed by Drs. J. W. Thomas, Richmond, Va., and Eugene Foldes, New York.

Dr. Stearns S. Bullen, Rochester, N. Y., read a paper on "What Should the General Practitioner Know About Allergy?" Discussed by Dr. John H. Mitchell, Columbus, Ohio.

Session on Diseases of the Chest

THURSDAY, JUNE 24—MORNING

The meeting was called to order at 9:05 o'clock by the chairman, Dr. Richard H. Overholt, Boston.

Dr. Emil Bogen, Los Angeles, read a paper on "Laboratory Aspects of Streptomycin." Discussed by Dr. Allen Hurst, Denver.

Dr. H. C. Hinshaw, Rochester, Minn., read a paper on "Streptomycin in Extrapulmonary Tuberculosis." Discussed by Drs. Abel Froman, Chicago; Peter Amazon, Brooklyn; Jean Rafael Herradora-Ubeda, Jersey City, N. J., and W. L. Howard, Northville, Mich.

Dr. Karl Pfuetze of Cannon Falls, Minnesota, read a paper on, "Streptomycin in Treatment of Tuberculosis." Discussed by Drs. George Ornstein, New York; Donato Alarcon, México, D. F.; Benjamin Potter, Jersey City, N. J.; H. G. Trimble, Oakland, Calif.; Abel Froman, Chicago, and Morris Braverman, Detroit.

Dr. William Tucker, Minneapolis, read a paper on "Experience with Treatment of Various Forms of Tuberculosis with Streptomycin in Veterans Administration." Discussed by Dr. Karl Pfuetze, Cannon Falls, Minn.

Dr. Edward J. Beattie, St. Louis, read a paper on "The Use of Streptomycin in Surgical Patients." Discussed by Drs. Emil Bogen, Los Angeles, and Richard H. Overholt, Boston.

Dr. Chester S. Keefer, Boston, read a paper on "Antibiotics in Relation to Nontuberculous Diseases of the Chest."

Session on Physical Medicine

THURSDAY, JUNE 24—MORNING

The meeting was called to order at 9:00 by the chairman, Dr. George Morris Piersol, Philadelphia.

Dr. Harold Dinken, Denver, read a paper on "The Physical Treatment of the Hemiplegic Patient in General Practice." Discussed by Dr. Sedgwick Mead, St. Louis; Dr. Isador Blum, Newark, N. J., and Dr. G. J. Boines of Wilmington, Del.

Drs. Khalil G. Wakim, Julia F. Herrick, Gordon M. Martin and Frank H. Krusen, Rochester, Minn., presented a paper on "Therapeutic Possibilities of Microwaves." Discussed by Drs. Harold Dinken, Denver; Jerome Weiss, Brooklyn; David Kling, Los Angeles, Emile Brunor, New York and Louis Newman.

Dr. Howard A. Rusk, New York, read a paper on "Rehabilitation and General Practice." Discussed by Drs. Sedgwick Mead, St. Louis, and Jerome Weiss, Brooklyn.

Dr. Winfred Overholser, Washington, D. C., read a paper on "Psychiatric Aspects of Physical Medicine."

In a panel discussion on "Physical Medicine in General Practice," with Dr. George M. Piersol, Philadelphia, as moderator, the following papers were read:

Dr. Frances Baker, San Francisco: "Physical Treatment of Common Disorders of the Feet."

Dr. Frederic J. Kottke, Minneapolis: "Physical Treatment of Backache."

Dr. Robert L. Bennett, Warm Springs, Ga.: "Physical Treatment of Poliomyelitis."

Dr. Sedgwick Mead, St. Louis: "Physical Treatment of Peripheral Vascular Diseases."

Dr. Donald L. Rose, Kansas City, Kan.: "Physical Treatment of Shoulder Lesions."

Session on History of Medicine

FRIDAY, JUNE 25—MORNING

The meeting was called to order by the chairman, Dr. Howard Dittrick, Cleveland.

Dr. William J. Mixter, Boston, read a paper on "Rupture of the Intervertebral Disk: A Short History of Its Evolution as a Syndrome of Importance to the Surgeon." Discussed by Drs. Philip Lewin, Chicago, and William J. Mixter, Boston.

Dr. John R. Paine, Buffalo, read a paper on "Continuous Suction Drainage in the Treatment of Intestinal Obstruction: A Historical Evaluation."

Dr. T. Grier Miller, Philadelphia, read a paper on "The Development of Intestinal Intubation as a Practical Clinical Procedure: Introduction of the Double Lumen Tube."

These two papers were discussed by Dr. William J. Mixter, Boston.

Dr. Barnes Woodhall, Durham, N. C., read a paper on "Modern Historical Aspects of Peripheral Nerve Surgery." Discussed by Dr. William J. Mixter, Boston.

Dr. E. B. Astwood, Boston, read a paper on "Recent Developments in Antithyroid Drugs."

Dr. Rudolph Nissen, New York, read a paper on "The First Successful Pneumonectomy and Its Historical Significance." Discussed by Dr. Josiah C. Trent, Durham, N. C.

Washington Letter

(From a Special Correspondent)

July 14, 1948.

Poliomyelitis Cases Maintain Slow but Steady Increase

The unspectacular but steady gain in poliomyelitis incidence continues, according to reports reaching the United States Public Health Service. During the week ended July 3, there were 362 cases throughout the country, compared with 309 for the previous seven day period. A noteworthy fact was that, while Texas remained among the three states which have been hit hardest so far this year (California, North Carolina and Texas account for 64 per cent of the total cases), its weekly report was lower than the previous week's. The other two states, however, showed increases. Heaviest concentration of cases in North Carolina is in the western portion, with Guilford County bearing the brunt. In its weekly morbidity report, the United States Public Health Service called attention to the fact that the seven day period ended July 3 was the sixth consecutive week in which not one case of smallpox had been reported.

Civil Defense Medical Plan Completed

A comprehensive plan for utilization of members of the medical and allied professions in event of an enemy attack on this country's civilian population was approved by the medical advisory committee to the Office of Civil Defense Planning, which met on July 6. The blueprint has been submitted to Russell J. Hopley, director, for final approval.

Between the May and July meetings of the advisory group, Dr. Perrin H. Long, professor of preventive medicine at Johns Hopkins University and medical advisor to the Office of Civil Defense Planning, had worked on a draft of the manpower utilization blueprint. Its details are being withheld, pending completion and release of plans involving other aspects of the civil defense problem. Their publication is not expected before fall.

The following members of the medical advisory committee attended the July 6 meeting: Brig. Gen. J. M. Hargreaves, Col. E. S. Standlee, Capt. C. C. Myers, Lieut. Col. K. E. Baltz, Dr. Bruce H. Douglas, Dr. C. W. Camalier, Dr. W. R. Krill, Dr. R. P. Fischelis, Rev. Donald A. MacGowan, Dr. R. L. Sensenich, Dr. F. Wilson, Dr. P. S. Owen, Dr. R. B. Snavely, Miss Margaret Arnstein, Dr. E. F. Daily, Dr. Norvin C. Kiefer and Dr. E. H. Cushing.

Industrial Medicine and Defense Conference

The close relation between industrial health problems and national defense was the subject of a special conference held here July 7-8, sponsored by the Office of Defense in cooperation with the American Medical Association. No action was taken, nor were any policies recommended by the informally organized group, whose members included Drs. R. L. Sensenich, Carl M. Peterson and Richard L. Meiling, of the American Medical Association.

"In the event of another war," said an announcement on the meeting by Secretary of Defense James Forrestal, "the success of an industrial health program, now universally recognized as a vital factor in civil defense, would depend largely on complete coordination of military and civil work in this field. A vast research program to determine what personnel and supplies would be needed and just how much of these are now available must be completed before plans to meet a war emergency can be crystallized. The conference [was] held to integrate further the work of the various interested agencies and to initiate the research that remains to be done."

The conferees, during the two day meeting, heard spokesmen for the following government agencies: Army, Navy, Air Force, Public Health Service, Munitions Board, Office of Civil Defense Planning and National Security Resources Board. Their final afternoon session was held at the Brookings Institution, where they were informed of progress of that organization's investigation of certain health and welfare functions of the federal government.

Others in attendance at the conference were Drs. C. W. Camalier, American Dental Association; A. J. Lanza, Metropolitan Life Insurance Co.; Harold A. Vonachen, Caterpillar Tractor Co.; Edward C. Holmblad, American Association of Industrial Physicians and Surgeons, and Tom Hendricks, Council on Medical Service, American Medical Association.

Army Officers Receive Advanced Degrees

Members of the medical department are amply represented among two hundred and eighty-one Army officers who received degrees from graduate schools of civilian institutions during the academic year just ended. Seven earned the degree of Master of Public Health, five, Master of Science and one each, Master of Hospital Administration and Master of Business Administration. One doctorate, in psychology, was awarded, according to the Army's announcement.

Federal Security Agency Regional Offices Established

Further centralizing functions of Federal Security Agency, in the field as well as at Washington headquarters, ten regional offices have been established, according to an announcement. The step is the latest in the plan to deemphasize the agency's various units—Public Health Service, Food and Drug Administration, Office of Vocational Rehabilitation, Children's Bureau, Social Security Administration, Office of Education and Bureau of Employes' Compensation—and build up the parent agency's central function. Regional directors and their headquarters cities are as follows: John F. Hardy, I, Boston; Joseph B. O'Connor, II, New York City; Erval R. Coffe, III, Richmond; J. Kimball Johnson, IV, Cleveland; Ed McDonald, V, Chicago; Richard H. Lyle, VI, Atlanta; James W. Doarn, VII, Kansas City; James H. Bond, VIII, Dallas; Heber R. Harper, IX, Denver, and Fay W. Hunter, X, San Francisco.

Program for Distribution of Tagged Chemicals Announced

The Atomic Energy Commission has announced plans for production and distribution of certain chemicals tagged with radioactive elements in order to stimulate their use in medical and industrial research. Heretofore, radioisotopes have been available from Oak Ridge National Laboratory but investigators desiring "tagged" compounds have had to prepare them themselves. Further information on procurement is obtainable from Isotopes Division, Atomic Energy Commission, P. O. Box E, Oak Ridge, Tenn.

Medical Officers Called to Discuss Manpower Retrenchment

Surgeons of the six field Armies and of fourteen Air Force Commands were scheduled to assemble in Washington July 13 and 14 to discuss means of conserving medical manpower, in view of the additional burden which will ensue this fall when selective service goes into effect. The Army Surgeon General is not expected to return from Europe until late July, and the critical situation faced by the Army medical department was to be explained to the Army and Air Force surgeons by Brig. Gen. G. E. Armstrong, Deputy Surgeon General.

Numerical Importance of Fractures Among Naval Personnel Disclosed

The major role borne by the diagnosis simple fracture is attested by a statistical study published in "Statistics of Navy Medicine" for July. It reveals that during the war years simple fractures resulted in 4,500,000 sick days in the Navy and Marine Corps, a total surpassed only by the number of sick days due to common cold and other infections of the respiratory tract blanketed by the term "catarrhal fever." Between 1942 and 1945, inclusive, 104,820 simple fracture cases were handled, an incidence rate of 1,051 per 100,000.

By anatomic regions, bones of the lower extremity had the highest fracture incidence, testifying to the commonness of shipboard falls down hatchways. This group accounted for 36 per cent of all simple fractures recorded. Of the total of 104,820 cases, only 1,617 led to medical discharge (1.5 per cent). Deaths attributable to fracture origin were almost negligible, with the conspicuous exception of skull fractures. There were 1,460 such cases, of which 517 (35 per cent) terminated fatally.

ARMY

CONFERENCE TO CORRELATE REHABILITATION

Representatives of three armed services and two government agencies met in the office of the Army Surgeon General on June 28 for the benefit of crippled servicemen, ex-servicemen and civilians. A conference on physical medicine and rehabilitation will be held then to plan correlation of all government medical efforts in that field. Participating will be the Army, Navy, Air Forces, Veterans Administration and U.S. Public Health Service, together with civilian consultants of each. Among those participating will be Dr. Frank H. Krusen, director of the Baruch Committee on Physical Medicine. Dr. Krusen is a consultant for both the Army and the Veterans Administration. Armed services conferees will be representatives of the physical medicine units of each agency, led by Lieut. Col. B.A. Strickland Jr., chief of the physical medicine consultants division of the Army Medical Corps.

THE ARMY'S NEW SCHOOL CATALOG

The 523 page booklet entitled "The Army School Catalog," which has just come off the government printing press, confirms Secretary of the Army Royall's statement that education is big business in the Army. The book (Department of the Army Pamphlet no. 20-21) contains information about the one hundred and thirty-six courses available for Army officers and the one hundred and ninety-eight courses available for enlisted personnel in the Army's vast educational system, ranging from neuropsychiatric nursing to courses as far from the field of medicine. The prerequisites for each course are outlined in detail. The director of the Personnel and Administration Division of the Army, Lieut. Gen. Willard S. Paul, said, "The Army School Catalog will become a most important tool in the career guidance program of the Army. Here for the first time in one publication is that vast array of school training open to officers and enlisted men. It will give every man and woman in the service a complete picture of the wide range of school courses open to those who qualify under the prerequisites for selection also found in the catalog."

ARMY INSTITUTE OF PATHOLOGY

Dr. Frank G. Haughwout, formerly with the Bureau of Science, Manila, arrived at the Army Institute of Pathology on July 1 to serve as resident consultant for ninety days. He was for three years imprisoned in Japanese prison camps in the Philippines.

The resident consultants at the Army Institute of Pathology, Washington, D. C., during June were Drs. Hartwig Kuhlenbeck, Philadelphia; Henry Pinkerton, St. Louis; Herman Becks, San Francisco, and Granville Bennett, Chicago. Dr. Kuhlenbeck presented a special lecture at the institute June 16 on "Nephrogenic Adenoma of the Urinary Bladder."

JOINT EXHIBIT

The Surgeon General of the Army and Navy and the Air Surgeon of the Departments of the Army, Navy and Air Force jointly prepared the extensive exhibit for the annual meeting of the American Medical Association June 21 to 25, in Chicago, the theme of which was "The General Practitioner in the Atomic Age." This joint effort, the Army Medical Department states, is further proof of the complete armed forces unification.

NAVY

OFFICERS APPROVED FOR POSTGRADUATE TRAINING

At a recent meeting the Advisory Board of the Bureau of Medicine and Surgery approved the following officers for postgraduate training.

Captain Edward F. Kline: Training in Internal Medicine at Naval Hospital, Long Beach, Calif.

Captain Richard S. Silvis: Course in Surgery, University of Pennsylvania Graduate School of Medicine.

Commander John W. Albrittain: Residency in Dermatology and Syphilology, Naval Hospital, St. Albans, N. Y.

Commander Joseph L. Yon: Fellowship in Surgery at Northwestern University, Chicago (Cook County Hospital).

Lieut. Comdr. Eugene P. Cronkite: Course in Application of Nuclear Physics to the Biologic and Medical Sciences, Univ. of California, Los Angeles.

Lieut. Comdr. Charles H. Eaton: Training in Internal Medicine, U. S. Naval Hospital, Long Beach, Calif.

Lieut. Comdr. Leo S. Madlem Jr.: Residency in Psychiatry, Naval Hospital, Bethesda, Md.

Lieut. Henry G. Gardiner Jr.: Instruction in Psychiatry in a civilian institution to be designated.

Lieut. Chester M. Lessenden: Residency in Dermatology and Syphilology, Naval Hospital, St. Albans, N. Y.

Lieut. William E. Morris: Training in Urology, Naval Hospital, St. Albans, N. Y.

Lieut. Herbert G. Stoecklein: Course in Dermatology and Syphilology, Naval Hospital, San Diego, Calif.

Lieut. (jg) Walter T. Colbert: Course in Submarine Medicine.

Lieut. (jg) James R. Hamilton: Residency in Dermatology and Syphilology, Naval Hospital, San Diego, Calif.

Lieut. (jg) Verne K. Harvey Jr.: Instruction in Preventive Medicine, Univ. of California, Berkeley, Calif.

Lieut. (jg) Harold T. Meryman: Course in Application of Nuclear Physics to the Biologic and Medical Sciences, Univ. of Calif., Los Angeles.

Lieut. (jg) David R. Rogers: Course in Aviation Medicine, Naval Air Station, Pensacola, Fla.

Lieut. (jg) Robert E. Walsh: Residency in Anesthesia, Naval Hospital, St. Albans, N. Y.

TOUR OF INSPECTION IN AFRICA

Rear Admiral Lamont Pugh, deputy chief, Bureau of Medicine and Surgery, left June 23 with Capt. J. J. Sapero, M.C., to visit the Navy's Medical Research Unit in Africa which is now with the University of California's African Expedition in Nairobi, Kenya Province. Admiral Pugh will visit also the Navy's Research Unit at Cairo, the medical installation at Athens, Greece, the medical facilities of the Sixth Task Fleet and of the Naval Forces, East Atlantic and Mediterranean. Capt. Sapero will remain at Nairobi and will head the medical research unit until the completion of the expedition in about six months.

CAPTAIN RODDIS RETIRES

Capt. Louis H. Roddis retired on June 30 from active duty after thirty-four years of service. During the recent war he served as senior medical officer on the hospital ship *Relief* in the Central Pacific campaign. His latest assignment was editor of the *United States Naval Medical Bulletin*, to which position he had been assigned on two previous tours of duty. Capt. Roddis, retired, will continue on active duty at the Naval Hospital, San Diego, Calif., where he will direct the preparation of the Navy's Medical History of World War II.

NEW REGULAR OFFICERS

The following reserve medical officers have transferred to the Medical Corps of the Regular Navy: Lieuts. (jg) Donald E. Lloyd of Emporia, Kan.; Delmar W. Ruthig of Saginaw, Mich., and James H. Watts Jr., of Ansley, Neb.

AWARDS AND COMMENDATIONS

Robert D. Coghill

The President's Medal for Merit has been awarded to Robert D. Coghill, Ph.D., director of research at Abbott Laboratories, North Chicago, Ill. During the war Dr. Coghill was head of the Fermentation Division, Northern Regional Research Laboratory, U. S. Department of Agriculture, Peoria, Ill. The citation signed by the President states that he "planned and directed methods for seeking high yielding strains of penicillin molds and methods of recovery and purification of penicillin, which proved invaluable to the war effort."

RESERVE OFFICERS BEGIN INTERNSHIPS

The following newly appointed medical reserve officers, lieutenants (jg), have begun their internships in Naval Hospitals: Frank Fosdick Allen, Boston; Wilbur F. Amonette III, Radford, Va.; Leonard F. Bender, Upper Darby, Pa.; Robert A. Berger, Williamsport, Pa.; Ellsworth R. Browneller, Williamsport, Pa.; Thomas B. Delaney, Worcester, Mass.; James J. Humes, Overbrook Hills, Pa.; George B. Kimbrough, Louisville, Ky.; Norman A. Parrott, Paducah, Ky.; Paul Podmajersky, Chicago; Robert D. Rector, Mechanicsburg, Pa.; Daniel L. Shaw Jr., Philadelphia; Lawrence Stark, New York, and Robert B. Wright, Erie, Pa.

PERSONAL

Lieutenant (jg) Joseph J. Martorano of New York has recently accepted an appointment as Aviation Physiologist in the Medical Service Corps of the Regular Navy.

VETERANS ADMINISTRATION

MORE NEUROPSYCHIATRIC PATIENTS DISCHARGED THAN ADMITTED

Improved technics in the care of mentally ill veterans are enabling the Veterans Administration, for the first time in many years, to discharge about as many patients as are admitted to its neuropsychiatric hospitals. From July 1947 to April 1948, 1,060 more neuropsychiatric patients were discharged from hospitals than were admitted. However, for the twenty-two month period ending with April 1948, 107,579 patients were admitted for treatment and 106,694 discharged, only 885 more admissions than discharges. The establishment of more mental hygiene clinics for outpatient treatment is another factor for enabling the Veterans Administration to keep its hospital load of mentally ill from increasing substantially. The Veterans Administration neuropsychiatric service endeavors to treat actively mentally ill veterans before they become hospital patients and makes every effort to see that they are returned to their homes in restored or improved health. New policies permitting more effective treatment of mental patients and the improved or new technics used include:

1. Establishment of neuropsychiatric units in general medical hospitals to permit intensive early treatment of acutely psychotic and other psychiatric patients.
2. Establishment of general medical and surgical sections in neuropsychiatric hospitals, along with the organization of acute intensive treatment and continued treatment services for the acutely ill and long term patient.
3. Use of electric shock and insulin shock therapy.
4. Performance of prefrontal leukotomies on selected groups of patients.
5. Increased use of psychotherapy, both individual and group.
6. Extensive educational programs, residency training and affiliation with top medical schools in all the neuropsychiatric specialties.
7. Extension of mental hygiene clinics to treat eligible veterans before they become ill enough to be hospital patients.
8. Introduction of the "team technic" in the mental hygiene clinics. Each team—consisting of a psychiatrist, clinical psychologist and two psychiatric social workers—carries a full case load of patients, greatly speeding treatment and preventing many veterans from becoming patients in mental hospitals by early effective treatment of their illnesses.
9. Testing of the "team technic" in the rural areas in hope of bringing "traveling mental hygiene clinics" to veterans outside metropolitan areas.
10. Reorganization of the neurology service and establishment of neurologic diagnostic and treatment centers to which patients from areas lacking competent neurologic staffs can be referred.
11. Establishment of a clinical psychology program which has become a vital part of the diagnostic and treatment teams in hospitals and clinics. Through the interest of psychologists, neurologists and psychiatrists, many research studies into little known diseases and injuries have been undertaken.
12. Widespread use of volunteer workers in mental hospitals and development of a program of public education regarding mental illnesses.
13. Participation of the Veterans Administration's professional people in community and professional activities outside the hospitals.
14. Establishment of research programs into the causes of war neuroses, epilepsy, schizophrenia and other ailments. Group psychotherapy, shock therapy and other methods of cure also are subjects on the research programs.
15. Establishment of special laboratories for studies in pathology and psychosomatic disorders.
16. More extensive use of narcosynthesis and hypnosis.
17. Intensive medical rehabilitation for chronic patients, including those suffering from the diseases of old age. A current survey reveals that despite improved rates of discharges from hospitals, 74 per cent of all the patients presently in neuropsychiatric hospitals have been there for over a year and 55 per cent of the neuropsychiatric hospital population have been there over three years. Concerted efforts are being made to rehabilitate this group so that they may leave the hospital or be better able to care for themselves within the hospital. Plans to effect these goals include intensive application of physical medical rehabilitation procedures for all chronic patients including the aged, wide extension of trial visits both in the patient's own home or other suitable supervised home, and the establishment of hospital clinics to assist trial-visit patients in remaining out of the hospital.
18. Inauguration of a physical medicine rehabilitation program, including aural rehabilitation and speech correction, educational therapy, manual arts therapy, and physical therapy to assist in the physical and mental recovery of all veteran patients.

TUBERCULOSIS PATIENTS AND VETERANS' LIBRARIES

Patients in the Veterans Administration's eighteen tuberculosis hospitals read on the average, during April, one book, magazine or microfilmed publication every other day from hospital libraries. Veterans in the seventy-four general hospitals obtained reading material from the hospital libraries on an average of once in six days. Veterans in the thirty-four neuropsychiatric hospitals borrowed books and magazines once in every six and one-half days. Nearly 900,000 books and periodicals were on veterans hospital library shelves in April. Veterans' libraries are prepared to handle reference questions on a wide variety of subjects and during April answered nearly 12,000 queries from medical and patient personnel. The director of the veterans administration libraries service is F. R. St. John, formerly librarian in the Army Medical Library, Washington, D.C.

DECREASE OF VETERANS ON PENSION ROLLS

The Veterans Administration announces that the number of living veterans on disability compensation and pension rolls has decreased steadily over the past thirteen months. The total dropped from a peak of 2,328,000 on May 1, 1947, to 2,289,000 on June 1, 1948, a decrease of about 39,000.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

COLORADO

Course in Electroencephalography.—A twelve week graduate course in electroencephalography will be given three times annually starting the first Monday in September, December and March at the Colorado University Medical Center, Denver. It is open to graduates of medical schools approved by the Council on Medical Education and Hospitals who have had at least one year of training in physiology, neurology or psychiatry. The trainees will devote three months in the electroencephalography laboratory of the Colorado Psychopathic Hospital, Denver, and associated laboratories. The number of trainees who can be accommodated will be limited. Tuition is $125. Inquiries are to be directed to Dr. Ewald W. Busse, Director of Electroencephalography Department, Colorado University Medical Center, Denver.

ILLINOIS

Public Health Appointments.—Dr. Henrietta Herbolsheimer has been appointed medical administrative assistant to Dr. Roland R. Cross, director, Illinois Department of Public Health. A graduate of the University of Chicago School of Medicine, Dr. Herbolsheimer has been a member of the staff of the department for seven years. George K. Hendrix has been appointed chief of the Division of Hospital Construction and Services, succeeding Dr. Herbolsheimer. He holds the Bachelor of Science degree in civil engineering and has done graduate work in the field of public health engineering at the University of Michigan, Ann Arbor.

Chicago

Receives Borden Award.—Dr. Ben Fisher, Milwaukee, has been named the winner of University of Illinois Borden Undergraduate Award for 1948, a gift of $500, for research in "Clinical Observations on the Prothrombin Test." Dr. Fisher received his Doctor of Medicine degree from the University of Illinois in June.

Fellows in Allergy.—Drs. Jean Dausset and Claude Lapresle, both of Paris, France, have been awarded fellowships to take a twelve month graduate course in allergy which will be offered next autumn by the University of Illinois' Colleges of Medicine and Pharmacy. They will receive stipends from a fund established by an anonymous donor. Eight American physicians also will be selected for the course, which starts September 27. The 1948-1949 course will be the fourth to be offered by the University of Illinois Allergy Unit.

New Exhibit on Infantile Paralysis.—An exhibit, designed to impart basic knowledge of infantile paralysis and other virus diseases, was opened June 17 at the Museum of Science and Industry in Jackson Park. It was developed by the National Foundation for Infantile Paralysis and the Cook County Chapter to help fight the disease and through education allay public fear regarding it. The first panel shows the relation of nerve impulse to muscle action in normal and paralyzed persons. The second panel shows the various possibilities that medical science is exploring to control poliomyelitis. The third panel is a life-sized transparent man with a simplified nervous structure, showing the muscles affected when poliomyelitis attacks certain areas in the brain and spinal cord. The fourth panel portrays steps in the treatment of patients with poliomyelitis, including orthopedic surgery. What the National Foundation for Infantile Paralysis is doing to fight poliomyelitis—research, education and medical care—makes up the fifth panel.

MASSACHUSETTS

Dr. Castle Succeeds Dr. Minot at Memorial Laboratory.—Dr. William B. Castle, professor of medicine at the Harvard Medical School, Boston, has been named to succeed Dr. George R. Minot as director of the Thorndike Memorial Laboratory of the Boston City Hospital. Dr. Castle has been associated with Dr. Minot, a Nobel Prize winner in medicine and physiology in 1934, in the laboratory for more than twenty years. He has been associate director since 1932. Thorndike Memorial Laboratory, opened in 1923, was designed to provide adequate facilities for research and study to physicians engaged in the care of patients. It is closely integrated with the clinical services of Boston City Hospital and Harvard Medical School.

MICHIGAN

University Appointment.—Dr. Robert R. Morgan, Boston, has been appointed associate professor of epidemiology at the School of Public Health, University of Michigan. Dr. Morgan has recently been working as senior fellow in virus diseases, National Research Council, at the Thorndike Memorial Laboratory in Boston, with Dr. Maxwell Finland and John F. Enders, Ph.D. His investigations have been concerned with Salmonella and chemotherapy of virus infections.

Personal.—Mable M. MacLachlan, director of dietetics, University Hospital, University of Michigan, has resigned, effective June 30, to become educational director of the American Dietetics Association.——Dr. Edward P. Cawley, Ann Arbor, a graduate of the University of Michigan Medical School, 1940, has been appointed assistant professor of dermatology at his alma mater.

NEW JERSEY

Appoint Hospital Medical Director.—Dr. Royal A. Schaaf, Newark, member of the Presbyterian Hospital staff for twenty-nine years, has been named to succeed Dr. E. Zeh Hawkes, Newark, as medical director of the hospital. Dr. Schaaf is president of the Society of Surgeons of New Jersey and past president of the Medical Society of New Jersey. Dr. Hawkes has been medical director for the past twenty-one years. He expects to continue practice in surgery and gynecology.

Museum for Proteins of Organisms.—A museum for the collection and study of the proteins of the blood and other tissues of organisms has been established in the department of zoology at Rutgers University, New Brunswick. The museum is an outgrowth of studies in systematic serology conducted for twenty-three years by Dr. Alan Boyden, professor of zoology, and his students and colleagues. The museum will endeavor to preserve the representative serums and other proteins of organisms, to build up the collection to the point where each group of organisms is represented, to share specimens with other researchers and to learn as much as possible about the samples collected. While the serums of hundreds of species of animals have already been collected, no group of animals is yet adequately represented in the collection or has yet been adequately studied serologically. The museum invites the cooperation of all naturalists in a position to contribute or exchange samples of the proteins of organisms.

NEW YORK

Organize Academy of General Practitioners.—At an organization meeting in Syracuse June 3 the New York State Academy of General Practitioners elected Dr. William A. Buecheler, Syracuse, president; Dr. James H. Arseneau, Lyons, secretary, and Dr. Morton M. Spielman, New York, treasurer.

Pamphlet on BCG Vaccination.—The New York State Department of Health and the Medical Society of the State of New York have published a pamphlet to be distributed to groups directly concerned with BCG vaccination programs. The pamphlet gives the administrative aspects of the program, explains the technics of BCG vaccination and recommends procedures for tuberculin testing. Additional information is given under such headings as Consultation and Advisory Service, Contraindications to Vaccination, Reactions, Record Forms and Ordering of Vaccine.

Personal.—Dr. Dicran A. Berberian, formerly chairman, department of bacteriology and parasitology, American University of Beirut, Lebanon, is now a senior investigator in the department of chemotherapy of the Sterling-Winthrop Research Institute, Rensselaer, N. Y. Dr. Berberian is also assistant professor of medicine at Albany Medical College, where he lectures on tropical diseases.

New York City

Society News.—The Nassau Neuropsychiatric Society was recently organized by the private practicing neurologists and psychiatrists of Nassau County, Long Island and New York, with Dr. James L. McCartney, president, and Dr. Peter G. Denker, secretary-treasurer.

Four Assume Emeritus Status at Columbia.—Four members of the Columbia University College of Physicians and Surgeons faculty assumed emeritus status on July 1. They are: Dr. Louis Casamajor, professor emeritus of clinical neurology; Dr. William H. McCastline, university medical officer emeritus; Dr. Walter W. Palmer, Bard professor emeritus of medicine, and Dr. Edwin G. Zabriskie, professor emeritus of clinical neurology.

Achievement Award.—During the commencement program of the Long Island College of Medicine, June 10, the Alumni Medallion for achievement, an annual award given to the graduate who has made a significant contribution to American medicine, was presented to Dr. George Gray Ward of the class of 1891. Dr. Ward is a former professor of obstetrics and gynecology at New York Postgraduate Hospital, Cornell University Medical College, and Columbia University College of Physicians and Surgeons.

Symposium on Radioiodine.—The Biology Department of Brookhaven National Laboratory, Upton, L. I., announces a conference to be held at Brookhaven July 26-30 on the "Biological Applications of Nuclear Physics." The last three days will be devoted to a symposium on radioiodine, covering the following subjects: radioiodine as a tool in evaluating the functions and physiologic aspects of thyroid tumors, standardization of radioiodine, radioiodine in diagnosis and treatment of hyperthyroidism, histologic types of thyroid carcinoma and their respective abilities to store radioiodine, and clinical methods and results of radioiodine therapy in metastatic thyroid cancer.

Memorial Panel on Pneumatology.—The New York University College of Medicine and the Society for the Prevention of Asphyxial Death prepared a panel on pneumatology at the Ohio State University College of Medicine, Columbus, June 17, as a memorial to William Allen Turner from his daughter, Miss Cameron Turner, Macochee Castle, Ohio. The program included discussions of gases in the saving of life and in the control of pain. The classes are to be repeated the first Friday of each month at the Manhattan General and the New York Eye and Ear Infirmary under the auspices of the New York University College of Medicine, Postgraduate Division, and the Society for the Prevention of Asphyxial Death, Inc. All communications should be addessed to the society, 205 East 78th Street, New York.

Appointments to Research Staff.—The Public Health Research Institute of the City of New York, Inc., a nonprofit organization, engaged in research in problems of public health in New York, has announced the following staff appointments: Dr. DeWitt Stetten Jr., assistant professor in the department of biological chemistry at Harvard Medical School, Boston, has been appointed chief of the division of nutrition and physiology. He replaces Otto A. Bessey, Ph.D., New York, who resigned to become professor and head of the department of biological chemistry at the University of Illinois College of Medicine, Chicago, on April 1. Dr. Hubert Bloch, guest of the Rockefeller Institute for Medical Research from Basil, Switzerland, as associate member in the division of applied immunology. Marjorie R. Stetten, Ph.D., as associate in the division of nutrition and physiology. Dr. Richard E. Rosenfield, New York, as assistant in the division of applied immunology. Dr. Katherine Sprunt, Baltimore, as assistant in the division of infectious diseases. The following have resigned: Dr. Oliver H. Lowry, formerly member and associate chief of the division of nutrition and physiology, has joined the staff of Washington University School of Medicine, St. Louis, as professor of pharmacology. Dr. Robert E. Shank, New York, associate member in the division of nutrition and physiology, has accepted the position of professor of preventive medicine at Washington University School of Medicine.

NORTH CAROLINA

University Appointments.—Dr. Felda Hightower, affiliated with the North Carolina Baptist Hospital and Bowman Gray School of Medicine, Winston-Salem, since July 1941, has become assistant professor of surgery in charge of general surgery. Other appointments include: Dr. Ernest H. Yount Jr., Newton, instructor in internal medicine; Dr. John Carroll Wiggins, Winston-Salem, assistant in clinical medicine; and Dr. Leslie M. Morris, Rutherfordton, instructor in radiology.

OHIO

First Governor Was a Physician.—In the *Bulletin of the History of Medicine* Linden F. Edwards writes that Dr. Edward Tiffin arrived at Chillicothe in 1798 after a hazardous journey from Virginia and immediately began the practice of medicine. George Washington had written previously to the Governor of the Northwest Territory paying tribute to Dr. Tiffin's character and recommending him for official appointment. The governor appointed Dr. Tiffin clerk of the common pleas court of Ross County in 1798, and from then for nearly thirty-one years Dr. Tiffin held public office. He was elected the first governor of Ohio in 1803, and before his second term expired, was elected to the United States Senate. He resigned as senator in 1809 and returned to Chillicothe hoping to retire from public office. However, the following year he was elected to the Ohio General Assembly, and was reelected in 1810. President Madison appointed Dr. Tiffin to be commissioner of what is now the Department of the Interior. He returned to Washington in 1814 as surveyor-general of the Northwest, holding that office during the terms of Madison, Monroe and John Quincy Adams. Dr. Tiffin died in 1820 at the age of 64. He continued to practice medicine almost until the time of his death.

TENNESSEE

University Appointment.—Dr. James N. Etteldorf, Memphis, has been appointed associate professor of pediatrics and will be director of the new pediatric research and diagnostic laboratory in John Gaston Hospital, of the University of Tennessee College of Medicine, Memphis.

Personal.—Dr. James G. Shaffer, assistant professor of preventive medicine and public health at Vanderbilt University School of Medicine, Nashville, has resigned, effective July 1, to become associate professor of bacteriology and virology and associate in preventive medicine at the University of Louisville School of Medicine, Louisville, Ky.

Unveil Portrait of Dr. Ellett.—A portrait of the late Dr. Edward C. Ellett, Memphis, was unveiled June 8 in the Memphis Eye, Ear, Nose and Throat Hospital, where he served as chief of staff from 1926 until his death a year ago. The Memphis Society of Ophthalmology and Otolaryngology commissioned the portrait, and former associates and colleagues and former residents of the hospital contributed to the fund.

TEXAS

University Appointment.—Dr. Benjamin B. Wells, formerly dean of the University of Arkansas School of Medicine, Little Rock, has been appointed director and head of the department of clinical pathology at the University of Texas Medical Branch, Galveston. Dr. Wells was graduated from Baylor University College of Medicine, Houston, in 1935.

Dallas Health Museum Award.—Robert L. Sutherland, Ph.D., Austin, director, Hogg Foundation, University of Texas, Austin, received the first annual Dallas Health Museum Award at the meeting of the state medical association in Houston. Nominations were made to the Health Museum by Texas health agencies and organizations. Dr. Sutherland was cited "For his skill and activity in stimulating local responsibility in mental health education and for his profound interest in people."

Texas Cancer Bulletin.—The first number of the *Texas Cancer Bulletin* was published late in February by the Texas Cancer Coordinating Council, which is made up of the executive heads of the Committee on Cancer of the State Medical Association of Texas, Texas State Board of Health, the University of Texas M. D. Anderson Hospital for Cancer Research, Houston, and the American Cancer Society, Texas Division. The bulletin, prepared six times a year, is distributed free of charge to Texas physicians. Part of the funds for this project have been donated by the American Cancer Society and the state department of health. The M. D. Anderson Hospital is contributing the services of its entire staff. The state medical association is contributing both funds and services. The bulletin, designed for the family doctor, publishes the results of important researches. Two special issues, one for dentists and one for nurses, are scheduled for publication this year. The editorial staff includes Russell W. Cumley, Ph.D., executive editor, and Dr. R. Lee Clark Jr., Houston, directing medical editor.

WISCONSIN

Personal.—Dr. Henry A. Anderson, Medical Director, River Pines Sanatorium, Stevens Point, has been named president of the Wisconsin Trudeau Society, which he has also served as vice-president. Dr. David D. Feld, Wauwatosa, is secretary-treasurer.

Narcotic Violation.—The Federal Bureau of Narcotics reports that Dr. Loraine Karl Everson, Madison, pleaded guilty in the United States District Court to violation of the federal narcotic law and on May 10 was sentenced to a term of six months to be followed by probation for a period of two years.

Agency for the Chronically Ill.—The Central Agency for Chronically Ill, which has established headquarters at 756 North Milwaukee Street, Milwaukee, will list all resources for the care of the chronically ill in Milwaukee; refer requests for services to them; foster coordination of services for the chronically ill, and aid in the development of programs indicated for their care. The Service Club of Milwaukee has given $19,000 toward the development of the agency's program.

GENERAL

New Volumes on Medical Research.—*Methods in Medical Research*, a new series of annual volumes, is announced by the members of the governing board of this publication: Drs. Irvine H. Page, Indianapolis; Andrew C. Ivy, Chicago; Colin M. MacLeod, New York; Carl F. Schmidt, Philadelphia; Eugene A. Stead Sr., Durham, N.C., and David L. Thompson, Detroit. The first volume will be available in August 1948. The new series will be published by Year Book Publishers, Inc., Chicago.

Nutrition Research.—The Nutrition Foundation, Inc., has authorized grants totaling $121,917 to fifteen universities and medical centers in the United States and Canada. Projects deal with vitamins, amino acids, sugars, fats and trace elements. Donations to the foundation of $10,000 each from the Great Atlantic & Pacific Tea Company, New York, and the Purity Bakeries Corporation, Chicago, and of $1,000 from the Southern Cotton Oil Company, New Orleans, have been announced.

Prize for Contribution on Paget's Disease.—The Louis Lefkoe Memorial Foundation, Philadelphia, is offering a prize of $250 for the best original contribution to the medical knowledge of osteitis deformans (Paget's Disease). The paper may cover any aspect of the subject such as pathogenesis, biochemical knowledge, pathology or treatment. The paper is to be submitted to the trustees of the foundation on or before April 5, 1949, the birthday of Louis Lefkoe, in whose memory the foundation was created a year ago.

Books for Refugee Physicians.—The Preparatory Commission for the International Refugee Organization, Washington, D. C., is appealing for a donation of textbooks and journals to be distributed to refugee doctors and dentists. Among the 600,000 displaced persons in Germany, Austria, the Middle East and Italy, there are 2,500 doctors, dentists and pharmacists. One problem of this group is obtaining information on the progress in medicine during the past ten years. Donations should be addressed to the commission, Room 330, 1344 Connecticut Avenue N.W., Washington 25, D. C.

Increase in Life Span.—The persons who died in the United States in 1946 were six years older, on the average, than those who died in 1933, according to figures of the National Office of Vital Statistics. The average (median) age at death was 58.2 years in 1933 and 64.2 years in 1946. On the average, women live longer than men and their average age at death has increased faster. The average age at death for women was 59.2 in 1933 and 66.2 in 1946, an increase of 7.1 years, or 12 per cent. For men the average age at death in 1946 was 62.7 years. This was 5.2 years, or 9 per cent, higher than the corresponding age of 57.5 in 1933. The death rates decreased for every age group in the population between 1933 and 1946. The greatest improvement occurred among children 1 to 4 years of age. The death rate for this group dropped from 4.7 in 1933 to 1.8 in 1946, or 62 per cent. The smallest relative drop in death rates, 10 per cent, is seen for persons 75 years of age and over.

Survey of Tuberculosis Mortality.—A five year summary of tuberculosis mortality was released April 5 by Dr. Herbert R. Edwards of the New York Tuberculosis and Health Association. The tuberculosis death rate for the entire United States was reported as 36.4 per hundred thousand population. The fifteen largest cities showed the following 1946 "recorded" death rates: New Orleans 85; Washington, D. C., 62.3; Boston 60.2; Los Angeles 54.2; Buffalo 54; Philadelphia 53.3; Baltimore 50.6 Cleveland 50.4; Pittsburgh 49.4; San Francisco 48.5 Chicago 43.4; Detroit 42.85 New York 41.7; Milwaukee 34.7 and St. Louis 31.4. In foreign countries studied, Lisbon, Portugal, led European cities with a rate of 367, and Bulgaria led European countries with a rate of 161. In 1946 Canada's death rate was 47.3, England and Wales 53.3, Scotland 78.8, Northern Ireland 83.3 and the Irish Free State 114.4. On the European continent a low rate of 32 is reported in Denmark, 47 in the Netherlands, 68 in Spain, 81 in France, 120 in Hungary, 149 in Finland and 161 in Bulgaria. Large European cities in general had high rates: Copenhagen 44, Amsterdam 51, Stockholm 56, Oslo 61, London 70, Edinburgh 76, Paris 78, Belfast 94, Madrid 110, Glasgow 132, Budapest 143, Dublin 152, Rome 159, Vienna 164 and Berlin 260. In Warsaw a rate of 500 was said to prevail in 1944 as against 155 before the war.

Appointments to Strengthen Faculties.—The first group of scholars in medical science, under the plan announced by the John and Mary R. Markle Foundation to support qualified young scientists who plan to make a career in academic medicine, has been appointed. They were selected from candidates nominated by medical schools in the United States and Canada and regional committees appointed by the foundation. Toward the support of the scholars and their research the foundation has allocated $400,000 to their respective medical schools, each school to receive $25,000 payable at the rate of $5,000 annually for five years. As faculty members of these schools, the scholars will devote the next five years to teaching and research, at the end of which time they will have had an opportunity to become established teachers and investigators. Scholars will be appointed each year for the next few years for the long range purpose of strengthening medical education.

The sixteen scholars whose appointments begin in 1948 and their fields of research are: Christian B. Anfinsen, Ph.D., biochemistry at Harvard Medical School, Boston; Dr. Henry H. Balch, surgical infections at New York University College of Medicine, New York; Dr. Edward J. Beattie Jr., surgery and cardiorespiratory physiology at the George Washington University School of Medicine, Washington, D. C.; Dr. Marcel E. Blanchaer, biochemistry at the University of Manitoba, Winnipeg, Canada; Dr. Iven W. Brown Jr., injury produced by transfusion at Duke University School of Medicine, Durham, N. C.; Dr. Robert H. Ebert, pulmonary diseases at the University of Chicago. Dr. Richard C. Fowler, physiology and development of physicochemical tools at the University of Rochester School of Medicine and Denistry, Rochester, N.Y., Dr. Henry D. Hoberman, biochemistry and metabolism of compounds by use of isotope tracers at Yale University School of Medicine, New Haven, Conn.; Dr. Ralph A. Kinsella Jr., biologic chemistry at St. Louis University School of Medicine, St. Louis; Dr. Christian J. Lambertsen, pharmacology and cardiovascular and respiratory problems at the University of Pennsylvania School of Medicine, Philadelphia; Dr. William D. Lotspeich, renal physiology at Syracuse University College of Medicine, Syracuse, N. Y.; Dr. Preston B. Lowrance, cardiovascular disease at the University of Virginia Department of Medicine, Charlottesville, Va.; Dr. Frederick D. McCandless, neuropsychiatry at Albany Medical College, Albany, N. Y.; Dr. Manson Meads, internal medicine and infectious diseases at the Bowman Gray School of Medicine, Winston-Salem, N. C.; Dr. Julius B. Richmond, pediatrics at the University of Illinois College of Medicine, Chicago; Dr. Ralph O. Smith, internal medicine at Washington University School of Medicine, St. Louis.

Deaths

Oscar Reiss ✠ Beverly Hills, Calif., chairman of the Section on Pediatrics of the American Medical Association, 1947-1948 and vice chairman in 1941 and 1942, died June 16, aged 65, of coronary thrombosis. Dr. Reiss was born in Jassy, Rumania, March 24, 1883. He attended the University of Michigan and graduated from the College of Physicians and Surgeons of Chicago in 1906. He practiced in Chicago for a while, then moved to Nevada, then to California. In 1918 he returned to Chicago to receive pediatric training at the Sara Morris Memorial, Michael Reese Hospital. From 1919 to 1923 he was the first chief of the child welfare division of the Los Angeles Health Department, which he had organized. In addition to being a charter member and first president of the Trudeau Society of Los Angeles and the Southwestern Pediatric Society, which he also served as secretary, Dr. Reiss was a founder and three times president of the Southern California Mental Hygiene Society. He served as a consultant and member of the National Advisory Committee of the Childrens Bureau, participated in the first White House Conference on Maternal and Child Health and was invited by President Truman in 1948 to participate in planning a Health Program for the nation. Dr. Reiss was a specialist certified by the American Board of Pediatrics, a fellow of the American Academy of Pediatrics, a member of the American Orthopsychiatric Association, councillor of the Los Angeles County Medical Society and secretary-treasurer of its medical milk commission. He was clinical professor of pediatrics at the University of Southern California School of Medicine in Los Angeles and formerly associate professor of pediatrics at the College of Medical Evangelists in Loma Linda and Los Angeles, a member of the staff of St. Anne's Maternity Hospital, chief medical officer for thirty years of Vista Del Mar, the Los Angeles Jewish Orphans' Home, director of the pediatric service, and chief of staff of the Cedars of Lebanon Hospital, and chief of the pediatrics department of Los Angeles General Hospital for twenty years. He was the co-author of "My Body and How It Works." Dr. Reiss was to have represented the pediatric section of the American Medical Association, the American Academy of Pediatrics and the Southern California Society for Mental Hygiene at the International Conference on Mental Health to be held in London in August.

OSCAR REISS, M.D., 1883-1948

Philip Earle Blackerby ✠ Kentucky State Health Commissioner, was found dead at his home in Louisville, Ky., June 24, aged 66, of cerebral hemorrhage. Dr. Blackerby was born in Berlin, Ky., July 8, 1881. After graduation from the University of Louisville Medical Department in 1904, he served one year at the New York Postgraduate Medical School and Hospital. From 1906 to 1914 he practiced medicine at Erlanger, Ky., then joined the state board of health, serving until 1917 as field medical officer in a program for the eradication of hookworm disease. From 1917 to 1921 he was director of the bureau of vital statistics and from 1921 to 1943 director of county health work. He was assistant state health commissioner and assistant secretary of the state board of health from 1925 to 1943. Since August 1943, when he was appointed to complete the unexpired term of the late Dr. Arthur T. McCormack, he has served as state health commissioner and secretary of the state board of health, serving also as dean of its school of laboratory technicians. Dr. Blackerby was secretary of the Kentucky State Medical Association, member of the American Public Health Association and its Southern Branch, Conference of State and Provincial Health Authorities of North America, State and Territorial Health Officers Association and the Southern Medical Association. During World War I he served as a captain in the medical reserve corps, in charge of Kentucky recruitment and assignment of physicians to the armed services, and during World War II he was chairman for the procurement and assignment in Kentucky. He was a member of the medical advisory committee to state welfare institutions and an ex officio member of the board of trustees of the Frontier Nursing Service. Dr. Blackerby had been editor of the *Kentucky State Medical Journal*.

Augustus Smith Knight ✠ Far Hills, N. J.; born in Manchester, Mass., Nov. 24, 1864; Harvard Medical School, Boston, 1891; member of the American Psychiatric Association and the National Committee for Mental Hygiene; fellow of the American College of Surgeons; retired in 1934 as medical director of the Metropolitan Life Insurance Company in New York; treasurer of the Association of Life Insurance Medical Directors from 1903 to 1918 and in 1920 and 1921 president; president of the board of managers of the Greystone Park (N. J.) State Hospital; chairman of the board of trustees of the Somerset Hospital in Somerville, where he died March 21, aged 83, of injuries received in an automobile accident.

I. Newton Agenbroad, Dayton, Ohio; Eclectic Medical Institute, Cincinnati, 1891; died in the Miami Valley Hospital April 1, aged 84, of coronary thrombosis and myocardial disease.

Matilda Beaver ✠ Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1899; died in the Woman's Hospital, February 2, aged 84, of pulmonary embolus.

Frank Leroy Carson, Shawnee, Okla,; born in Wakeeney, Kan., Feb. 11, 1882; Medical Department of Tulane University of Louisiana, New Orleans, 1906; also a graduate in pharmacy; fellow of the American College of Surgeons; member of the founders' group of the American Board of Surgery; past president of the Pottawatomie County Medical Society; surgeon at the A. C. H. Hospital; on the courtesy staffs of Shawnee Municipal Hospital and Shawnee Indian Sanatorium; died recently, aged 65, of rupture of the pulmonary artery.

William Wyche Dickey, Chattanooga, Tenn.; University of Tennessee College of Medicine, Memphis, 1915; served during World War I; died March 15, aged 68.

Andre L. Ducharme, Lewiston, Me.; University of Montreal Faculty of Medicine, Montreal, Que., Canada, 1921; died in Auburn March 26, aged 54.

Leander Jacob Eads, Hamilton, Mo.; University of Louisville (Ky.) Medical Department, 1889; died March 18, aged 83, of coronary occlusion.

Arthur Henry Ellis ✠ Greenfield, Mass.; Dartmouth Medical School, Hanover, N. H., 1907; past president of the Franklin District Medical Society; member of the staffs of Franklin County Public Hospital in Greenfield and Farren Memorial Hospital, Montague City; died March 14, aged 66, of arteriosclerosis.

Jacob Julius Epstein ✠ New York; Yale University School of Medicine, New Haven, 1910; served on the staffs of Beth Israel, Babies' and Gouverneur hospitals; died in the New York Hospital March 24, aged 67, of heart disease.

Edward Carlin Ferguson ✠ Edwardsville, Ill.; Jefferson Medical College of Philadelphia, 1896; past president of the Madison County Medical Society; affiliated with St. Elizabeth's Hospital in Granite City and St. Joseph's Hospital in Alton; died March 26, aged 75, of coronary thrombosis.

Thomas S. Falvey, Conroe, Texas; University of the South Medical Department, Sewanee, Tenn., 1901; member of the American Medical Association; health officer of Montgomery County and city health officer of Conroe; served as local surgeon for the Santa Fe Railway; died March 15, aged 73, of arteriosclerosis.

Franklin Parkinson Flagg, Maynard, Mass.; Harvard Medical School, Boston, 1892; died in Brighton March 25, aged 82, of cerebral hemorrhage.

Clayton C. Flatt, Kinzua, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1891; member of the American Medical Association; died in the Warren (Pa.) General Hospital March 28, aged 84, of pneumonia.

Charles Ross Fishel, Tacoma, Wash.; Ohio Medical University, Columbus, 1906; member of the American Medical Association and of the Radiological Society of North America, Inc.; served during World War I; died March 15, aged 69.

James Quitman Fountain, Memphis, Tenn.; Medical Department of Tulane University of Louisiana, New Orleans, 1893; for four years state senator from Hancock County, Miss., where he was for many years county health officer; an officer during World War I; served on the staffs of Charity Hospital

in Natchez, Miss. and King's Daughters' Hospital in Gulfport, Miss.; died in Kennedy General Hospital March 28, aged 80, of cardiac failure.

Ada Mabel French, Los Angeles; Keokuk (Ia.) Medical College, College of Physicians and Surgeons, 1900; died February 19, aged 77, of cerebral hemorrhage and hypertension.

Victor C. Goldberg ✙ Long Beach, Calif.; Columbia University College of Physicians and Surgeons, New York, 1910; died March 17, aged 61.

Jacob S. Gregg, Fort Smith, Ark.; Eclectic Medical College, Cincinnati, 1912; died March 16, aged 63.

Alpheus B. Green, Norfolk, Va.; Leonard Medical School, Raleigh, 1902; died February 5.

Martin Milton Hage, Lake Mills, Iowa; the Hahnemann Medical College and Hospital, Chicago, 1912; member of the American Medical Association; on the honorary staffs of Naeve Hospital, Albert Lea, Minn., Forest City (Iowa) Municipal Hospital and Mercy Hospital in Mason City, where he died March 9, aged 62, of cerebral hemorrhage.

Joseph Ridgway Haines, Mount Holly, N. J.; Jefferson Medical College of Philadelphia, 1897; also a graduate in pharmacy; served on the staff of Wills Eye Hospital in Philadelphia; died in the State Hospital, Trenton, March 6, aged 81, of bronchopneumonia.

Eward H. Hake, Youngstown, Ohio; Dunham Medical College, Chicago, 1902; member of the American Medical Association; on the courtesy staff of St. Elizabeth Hospital, where he died March 24, aged 74, of coronary thrombosis and diabetes mellitus.

Enoch N. Heston, Columbus, Ohio; Columbus Medical College, 1892; died in the Grant Hospital March 27, aged 78.

Joseph Carl Kahan, Philadelphia; Maryland Medical College, Baltimore, 1911; died February 11, aged 79, of coronary thrombosis.

Lawrence Larry Keller ✙ Dallas, Texas; University of Tennessee College of Medicine, Memphis, 1913; served during World War I; died March 2, aged 61, of general peritonitis following a ruptured gallbladder.

Walter Dennis Kendig ✙ Kenbridge, Va.; Medical College of Virginia, Richmond, 1905; past president of the Fourth District Medical Society and formerly vice president of the Medical Society of Virginia; member of the board of visitors of the Medical College of Virginia; state senator; affiliated with the Kendig Brothers Hospital in Victoria from 1920 to 1932; died March 16, aged 67, of heart disease.

Raymond Arndt Kiefer, Ramsey, N. J.; Jefferson Medical College of Philadelphia, 1903; a medical officer serving during World War I; served on the staffs of the Paterson (N. J.) Hospital and the Good Samaritan Hospital in Suffern, N. Y.; died in Tallman, N. Y., March 29, aged 71, of carcinoma of the bladder.

Jesse Alexander King, Ojai, Calif.; St. Louis College of Physicians and Surgeons, 1905; member of the American Medical Association; died March 31, aged 74.

William A. Kingsley, Brookline, Mass.; Laval University Faculty of Medicine, Quebec, Canada, 1908; died February 9, aged 70, of congestive heart failure.

Joseph Hunter Kirkpatrick ✙ Los Angeles; Chicago Homeopathic Medical College, 1897; an Affiliate Fellow of the American Medical Association; served on the staff of California Hospital; died March 14, aged 76, of heart disease.

Harry Willard Kline, Anoka, Minn.; the Hahnemann Medical College and Hospital, Chicago, 1919; died March 17, aged 54, of coronary thrombosis and diabetes mellitus.

Marceine Denver Klote, Detroit; St. Louis University School of Medicine, 1928; member of the American Medical Association; affiliated with the Providence Hospital; died March 24, aged 45, of coronary thrombosis.

Samuel Tilden Ladd ✙ Portsmouth, N. H.; Dartmouth Medical School, Hanover, N. H., 1900; past president of the New Hampshire Medical Society; formerly mayor of Portsmouth and comptroller of customs for the New England district; served in the city council and as city physician; died in the New England Deaconess Hospital in Boston, March 27, aged 71, of ruptured aneurysm of the right iliac artery.

Frank Henry Landes, Mount Ayr, Iowa; Marion-Sims College of Medicine, St. Louis, 1897; died March 13, aged 75, of heart disease.

Leslie Phillips Leland ✙ Worcester, Mass.; Boston University School of Medicine, 1909; member of the New England Obstetrical and Gynecological Society; formerly secretary of the Worcester District Medical Society; member of the medical milk commission; on the staff of the Worcester Hahnemann Hospital, where he died March 16, aged 63, of lymphoblastoma.

John Newton Lightsey, Cotulla, Texas; University of Texas School of Medicine, Galveston, 1911; member of the American Medical Association; past president of the La Salle-Frio-Dimmit Counties Medical Society; county health officer; served during World War I; local surgeon for the Missouri Pacific Railroad; died March 17, aged 65, of heart disease.

Andrew Jackson Love, New York; Columbia University College of Physicians and Surgeons, New York, 1910; died March 21, aged 86, of coronary sclerosis.

John Henry Martin ✙ Red Oak, N. C.; University of Nashville (Tenn.) Medical Department, 1903; died March 19, aged 80, of arteriosclerotic heart disease.

William Martin, Haddonfield, N. J.; Jefferson Medical College of Philadelphia, 1889; past president of the Bucks County (Pa.) Medical Society; served on the Ventnor Board of Education; affiliated with the Frankford and Friends hospitals in Philadelphia; died March 20, aged 79, of cerebral thrombosis.

George August May, Ann Arbor, Mich.; Yale University School of Medicine, New Haven, 1901; served as associate professor of physical education at the University of Michigan; died in the University Hospital March 28, aged 75.

George K. Maynard, Clovis, N. M.; St. Louis University School of Medicine, 1903; member of the American Medical Association; died in Brownsville, Texas, in March, aged 74.

John Patrick Murphy ✙ St. Louis; St. Louis University School of Medicine, 1924; member of the Clinical Orthopaedic Society and of the American Academy of Orthopaedic Surgeons; on the staff of St. Mary's Hospital; died March 21, aged 61, of heart disease.

Paul Oliver, Frankfort, Mich.; Rush Medical College, Chicago, 1901; fellow of the American College of Surgeons; formerly on the faculty of his alma mater; served during World War I; formerly on the staff of the West Suburban Hospital in Oak Park, Ill.; died in Daytona Beach, Fla., March 20, aged 72, of coronary occlusion.

William Henry Orwick, Massillon, Ohio; Western Reserve University School of Medicine, Cleveland, 1946; interned at the Youngstown (Ohio) Hospital; lieutenant in the medical corps, Army of the United States, assigned to Fort Adams, Newport, R. I.; died in Walter Reed General Hospital, Washington, D. C., February 20, aged 26, following the removal of a benign cyst from the fourth ventricle.

Leonard Joseph Ostrowski ✙ East Chicago, Ind.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1912; also a graduate in pharmacy; on the staff of St. Catherine's Hospital; died while vacationing in Mesa, Ariz., March 28, aged 62.

Elmer Ellsworth Overfield, Eaton Rapids, Mich.; State University of Iowa College of Medicine, Iowa City, 1888; died March 25, aged 86, of chronic myocarditis.

Anders Peter Overgaard ✙ Houston, Texas; Omaha Medical College, 1900; specialist certified by the American Board of Radiology, Inc.; member of the American Roentgen Ray Society, Radiological Society of North America, Inc., and the American College of Radiology; served on the staff of Covenant Hospital in Omaha and the Houston Clinic; died March 14, aged 69, of carcinoma of the bladder.

Samuel Benjamin Peacock ✙ Pittsfield, Ill.; Keokuk (Ia.) Medical College, 1896; died March 6, aged 81, of heart disease.

Julius Frederick Peppler, Rockford, Mich.; Rush Medical College, Chicago, 1902; for several terms village president; during World War I served in the medical corps of the U. S. Army; on the staff of St. Mary's Hospital in Grand Rapids; died in Veterans Administration Hospital in Grand Rapids March 10, aged 75, of leukemia.

William Anthony Peters ✙ Elizabeth City, N. C.; Medical College of Virginia, Richmond, 1915; affiliated with Albermarle Hospital; surgeon for the Norfolk and Southern Railroad; drowned while fishing March 17, aged 57.

Meade Hubbard Phelps, Natchitoches, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1912; parish coroner for many years; on the staff of the Natchitoches Hospital; died March 12, aged 62, of coronary occlusion.

De Costa Rhines, Owatonna, Minn.; the Hahnemann Medical College and Hospital, Chicago, 1884; served for many years as county coroner, a term as president of the village council and on the school board; died February 9, aged 89.

Fred J. Roemer, Port Lavaca, Texas; Memphis (Tenn.) Hospital Medical College, 1904; examining physician for Selective Service during World Wars I and II; county health officer; local surgeon for the Missouri Pacific and Southern Pacific railroads; died February 21, aged 69, of heart disease.

John Francis Russell, Troy, N. Y.; Georgetown University School of Medicine, Washington, D. C., 1929; served during World War II; died March 23, aged 44, after an operation for bleeding duodenal ulcer.

Benjamin Clarence Rush, Vaughan, Miss.; Tulane University of Louisiana School of Medicine, New Orleans, 1916; member of the American Medical Association; served during World War I; died March 29, aged 47, of heart disease.

William W. Shafer, Haines City, Fla.; Marion-Sims College of Medicine, St. Louis, 1892; Barnes Medical College, St. Louis, 1893; member of the American Medical Association; past president of the Polk County Medical Society; affiliated with the Morrell Memorial Hospital, Lakeland, where he died January 6, aged 82, of cerebral vascular disease and bronchopneumonia.

Lewis Maurice Shear ✠ Lancaster, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1910; served on the board of education, formerly city treasurer, director of public safety and city commissioner; affiliated with Lancaster General and St. Joseph's hospitals; died recently, aged 62, of coronary occlusion.

H. Lee Simpson, Detroit; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1904; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology and the American Medical Association; fellow of the American College of Surgeons; on the staffs of Harper Hospital, Receiving Hospital and Jennings Hospital, where he died February 3, aged 69, of coronary occlusion.

Claude Maurice Stafford, Detroit; Detroit College of Medicine, 1906; fellow of the American College of Surgeons; served as acting assistant surgeon in the U. S. Public Health Service; U. S. Consulate at Windsor, Ontario, Canada; formerly on the staff of St. Joseph's Mercy Hospital and for many years on the staff of St. Mary's Hospital; died in Riverside, Ontario, March 10, aged 66, of carcinoma of the rectum.

Michael Aloysius Sullivan ✠ Lackawanna, N. Y.; Niagara University Medical Department, Buffalo, 1899; fellow of the American College of Surgeons; chief of staff of Our Lady of Victory Hospital and senior consultant at the Mount Mercy Hospital in Buffalo; died March 11, aged 71, of coronary thrombosis.

Clarkson B. Thomas ✠ Plainfield, Ind.; Physio-Medical College of Indiana, Indianapolis, 1902; past president of the Hendricks County Medical Society and of the Seventh District Medical Society; formerly on the faculty of his alma mater; affiliated with Methodist Hospital, Indianapolis; died March 13, aged 71, of coronary occlusion.

William Vernon Tucker, Elkhart, Kan.; Louisville (Ky.) Medical College, 1893; died in Phoenix, Ariz., recently, aged 80, of heart disease and peptic ulcer.

James Lindley Vail, Cranford, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1898; served as physician for the board of education and board of health; died in the Convalescent Home, Roselle Park, March 22, aged 75, of coronary thrombosis.

Henry Edward Whalen ✠ Dexter, Maine; Jefferson Medical College of Philadelphia, 1922; affiliated with Plummer Memorial Hospital; died in Massachusetts Memorial Hospital, Boston, March 3, aged 50, of hypertensive heart disease.

Phillip Henry White, Cleveland; Illinois Medical College, Chicago, 1904; died in Selma, Ala., February 6, aged 71.

KILLED IN ACTION

CAPT. WEBSTER C. SMYERS, M.C., A.U.S., 1914-1944

LIEUT. HIRAM M. GREENE (MC) U. S. Navy, 1915-1946

LIEUT. COL. WILLIS H. DRUMMOND M.C., A.U.S., 1899-1944

Webster Cullen Smyers, Dayton, Ohio; University of Cincinnati College of Medicine, 1941; interned at the Miami Valley Hospital; began active duty as a first lieutenant in the medical corps, Army of the United States, in June 1941; promoted to captain; killed in action in the South China Sea Oct. 24, 1944, aged 30, as the result of the sinking of a Japanese ship on which he was being transported while a prisoner of war.

Hiram Moe Greene ✠ Lieutenant, (MC), U. S. Navy, Fremont, Ohio; University of Louisville (Ky.) School of Medicine, 1941; appointed a lieutenant (jg) in the medical corps of the U. S. Navy on Jan. 6, 1941; interned at the U. S. Naval Hospital in Chelsea, Mass.; officially reported to be missing in action as of Nov. 1, 1943, serving aboard the U. S. S. *Wahoo* when that submarine failed to return from a war patrol in the Sea of Japan; presumptive date of death by the Navy Department is given as Jan. 7, 1946, aged 31.

Correction.—Above is the correct photograph of Willis Hinton Drummond ✠ Lieutenant Colonel, MC., U. S. Army, Hollywood, Calif., who was killed in action in the Pacific area Dec. 15, 1944. Dr. Drummond's obituary appeared in THE JOURNAL, June 26, page 804, under the picture of Major Michael A. Rafferty, M.C., A.U.S., who was killed in action in Belgium, Nov. 24, 1944. Dr. Raffery's obituary appeared in THE JOURNAL, Feb. 10, 1945, page 352.

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 12, 1948.

The 1947 Epidemic of Poliomyelitis

The Ministry of Health has published an analysis of the 1947 epidemic of poliomyelitis. The corrected notifications during 1947 are likely to amount to between 7,000 and 7,500. This gives an attack of 18 per hundred thousand population, compared to 5.8 in 1938, previously the year of highest recorded incidence. In 1938 the death rate from the disease was 6 per million living and the case fatality rate was 16 per cent. For 1947 the corresponding figures were 18 and 10, respectively. Thus, although there were many more deaths in 1947, the fatality rate was lower than in 1938. Details are also given of the special hospital inquiry to ascertain the probable results of the epidemic. Hospitals have made returns up to Oct. 11, 1947, of 6,762 patients admitted, for 4,717 of whom the diagnosis was confirmed. About one third of the patients were under the age of 5 years, one third between 5 and 15 and one third over 15. Only 14 per cent of the deaths occurred in children under 5 years of age, one fifth in children between 5 and 15 and no less than two thirds in persons over 15. The term infantile paralysis should be abandoned because the disease heavily attacks adults, in whom it carries a greater risk of death than in young children.

The Extent of Recovery

It is probably too early yet to estimate the full extent of the recovery of paralyzed muscles. Only one fifth of the paralyzed patients are at present classified as "severe," that is, "unlikely to return to normal life." Against this nearly a quarter of all the patients attacked by the disease had no paralysis at all. It is estimated that some 3,000 of the patients will need extended hospital treatment. Respirators ("iron lungs") were used for over 300 patients.

Liver Preparations in Pernicious Anemia

In a discussion at the section of medicine of the Royal Society of Medicine on the megalocytic anemias Dr. J. F. Wilkinson said that the liver principle necessary for production of normal red blood cells is absent in pernicious anemia, and a similar, if not the same, principle is obtainable from animal livers. During the last twenty years it has been found widely distributed in the livers of many species of animals. But whale liver and cod liver oil residues, after the oil has been extracted, are inactive. The same holds for fish livers in general, and he has yet to obtain an active liver extract from reptiles. An important observation was that the livers of cattle who died of diseases such as nakuruitis did not contain the active principle. For some time it has been a matter of concern that postwar liver extracts have not the same potency as prewar ones. Diseased livers unfit for food are used, of which possibly half are without pharmaceutic value. The more chemical processes through which liver extracts are put, the greater the risk of a subpotent preparation.

Recently cases have been reported of anemia refractory to highly purified preparations. If the batch from which the preparation was obtained has not been tested, it should not be concluded that the preparation was refractory, for it might be an inactive one. Wilkinson advised that if a patient did not respond to a preparation in a fortnight it should be changed.

As to folic acid, he had found that in 9 of 20 cases it did not prevent the development of neurologic lesions and in 60 of 184 reported cases neurologic lesions had developed. These might come on within a month of starting treatment. Folic acid did not maintain the majority of patients with pernicious anemia in normal health. There was a gradual falling off of the blood count. The effective dose was large in comparison with liver, and it did not relieve the neurologic symptoms.

As to the prognosis in pernicious anemia, Dr. Wilkinson compared cases before and after liver treatment was introduced. In 68 cases before the advent of liver therapy the average duration of life was six months. All but 1 patient died within nineteen months. In his group of patients 1,480 received liver or stomach treatment during the last nineteen years. Only 301 were dead, while of these, 105 had lived for five years and 149 for five to twenty years. Of those still alive, 1,032 had been under treatment for more than five years. One survivor was over 100 years of age; 7 were over 90; 99 were over 80; 500 were over 70. If patients with pernicious anemia were treated adequately with liver or stomach preparations they would get well and remain so.

MADRID

(From Our Regular Correspondent)

June 15, 1948.

History Of The Idea Of Disease

Dr. P. Lain Entralgo, professor of medical history in Madrid University, has given a series of lectures in the Hall of the Madrid Medical Association on the "History of the Idea of Disease." His starting point was the "higher primitive culture," so called by the ethnologists of the *kulturhistorische Schule*, in which disease was considered as a punishment from God and, in interpreting the mechanism of that punishment, two attitudes prevailed: one perceived it as a moral pain (Assyria and Babylonia) and the other saw it as a physical affliction (Indo-European peoples, ancient Greece). Witnesses to this physical interpretation of disease are the first canto of the Iliad and other passages in Homer's poems. The Assyrio-Babylonian conception led to a dead end, whereas the Hellenic one is the basis of all scientific medicine.

The physical idea of disease, worked out by the disciples of Hippocrates, culminated in Galen, for whom disease was a *diathesis para physin*, a preternatural disposition of the physiologic functions. According to Lain, this was how the first systematic general pathology came into being, which was so ample that it comprised, in Galen, even sin or moral disorders, as a preternatural disposition of the soul. For the Assyrians, the sick man was a sinner; for Galen, the sinner was a sick man.

Lain states that theoretic nosology is the history of the Galenic concept of disease, into which Paracelsus introduced an important novelty, the consideration of disease not only as a "state" but as a real and living "entity." Sydenham emphasized the share of reactive effort in disease and taught us to define diseases by their visible characters and not by their essence, as was attempted by Galen. On the other hand, he studied "chronic diseases" with an attention which led him to appreciate the "biographical moment" in human disease.

But the physician who is not satisfied with merely classifying the "morbid species," as was done by the followers of Sydenham, must ask himself what the morbid species really is, its real consistency. It is here that Boerhaave, Stoll, Morgagni

and Bichat initiated the anatomoclinic system which was to culminate in Laennec, who taught us to define disease not so much by its symptoms as by the anatomic lesions and the physical signs by which lesions can be diagnosed in patients, thus closing the "Copernican cycle" of the anatomopathologic lesion postulated by Bichat and later by Laennec. This fulfilment was achieved by Bright, Rokitansky and Virchow.

The basic steges following this transformation of medicine by Laennec are as follows: (1) the symptom counteroffensive as a reply to the physical sign (functional tests) the physiopathology of Traube, Naunyn and Frerichs; the pathology of Kraus; the neurology of Jackson, von Monakow and Goldstein; (2) connected with the foregoing, the reintroduction into medical thought of the idea of biologic life achieved by bacteriology: disease as a vital fight: an example of this is Klebs's general pathology, and (3) absolutely new in the history of medicine, the penetration of the idea of personal life into the scientific consideration of the patient, the work of those doctors who have succeeded in understanding the revolutionary message of Freud: in Germany, the creators of personal pathology (Krehl, Siebeck, von Weizsaecker): in the United States, the cultivators of so-called psychosomatic pathology (Dumbar, Alvarez, Wolff). In this way, according to Lain, "medicine has started out to surpass, though without denying it, the purely physical conception of the Greeks. For the first time, medical thought seems to have reached a plenitude of motives although it has not achieved a plenitude of development."

In this course of lectures, Professor Lain Entralgo treated Spanish doctors and historians to an excellent philosophic view of disease. Like his previous course on the history of anatomy, this one provided a new orientation in focusing medical history.

Child Hygiene

In reporting on child hygiene, we shall not speak only of the Public Health Department under Dr. Palanca, which we dealt with in previous letters, but of other centers belonging to other ministries. Child hygiene in Spain is carried on by a series of units attached to different government departments. Intensification has taken place in the development of our puericulture institutions, the first impulse to which was given in 1935 with the establishing of a child hygiene clinic in every provincial capital. From then on state and state-protected works for the care of mothers and children have rapidly multiplied and are now numerous although not sufficient, especially in rural districts.

Institutions belonging to the various ministries and their scope are as follows:

A. Ministry of the Interior.—The work in this field done by the Public Health Department is done by the following institutions: in Madrid, the National Puericulture School and, in the provinces, twelve puericulture schools at Barcelona, Bilbao, Gijon, Malaga, Murcia, Santa Cruz de Tenerife, Seville, Valladolid, Valencia and Saragossa. The Madrid school has not been able to readmit a pediatrician of international fame like Dr. Jaso, who has been penalized for his collaboration with the Republican Government during the civil war, in which he did exemplary work; 5 nursing mothers' clinics (Barcelona, Bilbao, Madrid, Malaga and Seville); 194 pediatric clinics, 57 third degree (in important cities), 79 second degree and 58 first degree (practically rural). The number of clinics opened since the war is 133. There are 102 maternity clinics (60 third degree and 42 second), 50 of which have been opened since the civil war.

The Department of Charity and Social Works, in the Ministry of the Interior, has created child hygiene institutions and maternity centers within the Auxilio Social framework in nearly all the provinces, distributed as follows: (1) child feeding centers, 157; (2) maternity clinics, 24 (90 in project); (3) mothers' homes, 8.

By ministerial order, elementary child care is taught to all mothers registered at the maternity clinics, and an award known as "Exemplary Mother Diploma" has been founded. The Public Health Department carries on the monthly publication *Al Servicio de Espana y del Nino Espanol* and has stipulated the obligatory declaration of antidiphtheric vaccination. The Central Puericulture Institute has been founded, being the old children's wing of the Hospital del Rey.

B. Ministry of National Education.—To this belongs the so-called school medical corps. Although the child hygiene clinics of the state are also intrusted with the hygiene of school children, the doctors of this corps are the only ones who actually fulfil this important mission. There are school doctors in all the capitals of provinces and large townships. Since the civil war all vacant places have been filled with provisional nominees, and although competitive examinations were announced for definite appointments more than two years ago, these have not taken place yet.

C. Ministry of Justice.—Attached to this Ministry is the Young Persons Protection Board, which also maintains puericulture clinics.

D. Ministry of Labor.—Under this Department function the National Social Insurance Institute and Mothers' and Children's Fund. Until recently the latter was intrusted with giving sanitary and social assistance under the compulsory maternity insurance and family allowance schemes put into force in 1941 and 1931, respectively. Now both have been put under the national health insurance authorities.

Attached to the Ministry of Labor, too, are the following: (1) child hygiene clinics, 200; (2) maternity clinics, 240; (3) mothers' homes, 9.

E. Falange Española Tradicionalista y de las JONS.—In the feminine section of this political party there are 47 puericulture clinics.

To all these institutions belonging to the various ministries mentioned must be added the many created by provincial and municipal corporations over the country. All the child welfare institutions mentioned in this letter are decidely sanitary and social in character and, are generally well run and, if managed by one organization, would function admirably.

In many places where all the departments have branches or delegates, there is a multiplicity of offices and departments, while in others, or in other sectors of one same town, there are none or not enough. All this work represents a strong impulse toward the carrying out of ever more important work on behalf of children's health, but it seems to be hampered by the excess of foundations which interfere with each other's activities.

On July 12, 1942, the government issued the Mothers' and Children's Health Law promulgated by the Public Health Department. This tries to prevent interference between centers and services and contradictions between them; but, seven years have gone by since this act was passed, and coordination has not yet been achieved notwithstanding the desire for it on the part of all Spanish pediatricians. We are, therefore, faced with a contrast between the good intentions and ideas of all the authorities and defective functioning, the basic cause of which is the multiplicity of services.

TURKEY

(From Our Regular Correspondent)

Ankara, June 16, 1948.

Antirabic Campaign

The first antirabic institute in Turkey was established in 1887 in Instanbul. Professor Zoeros Pasha, who had studied at the Pasteur Institute in Paris was the director and Drs. Remzi and Rifat his co-workers. The institute was transferred in 1893 to Pera Nishan Tash, where it was directed by Professors Nicolle and August Marie. From 1896 to 1914 it was under the direction of Professor Remlinger and then for twenty years was under the direction of Remlinger's assistant Dr. Hayem Naoum who died in 1934.

A second antirabic institute was established during World War I in Sivas by Professor Tevfik Saglam Pasha. A third institute soon was established in Diyarbakir, a fourth in Konia and a fifth in Smyrna, and in time seventy-five more antirabic stations were established. When in 1933 the Refik Saydam Central Institute of Hygiene, where all vaccines and serums are prepared, was established in Ankara an antirabic institute was soon added under the direction of Dr. Abdulkadir Cilesix, who gained his experience at the Pasteur Institute in Paris.

At the first institute in Instanbul the original Pasteur method was employed. Later the Hogyes as well as the modified Högyes-Philips method came into use. At present the Semple method is the only one employed in the eighty antirabic stations of the country, whose establishment and work are shown in the accompanying tabulation.

Year	Number of Antirabic Stations	Persons Under Treatment	Deaths
1933	25	381	2
1934	25	1,077	1
1935	30	1,479	7
1936	34	1,994	9
1937	37	1,900	7
1938	52	2,501	2
1939	52	2,849	9
1940	50	3,428	5
1941	50	3,590	2
1942	55	4,135	3
1943	57	4,171	5
1944	72	3,591	1
1945	74	4,255	6
1946	77	5,201	6
1947	80	5,513	2
		45,255	57

Patients dying of rabies in spite of prophylactic treatment are mostly those from rural communities who either came in late for treatment or whose case was of an extremely grave nature.

Though rare cases of rabies in horses, cattles, mules, donkeys and chickens have been recorded, there are none on record in camels, turkeys, geese or ducks. All cities and many towns have antirabic campaign stations, which once a month report to the Ministry of Health on the number of stray dogs and cats killed. In almost every home there are one or two pet cats. People dislike the idea of their pets being killed. Last March a rabid dog was at large in Ankara, and, before it was shot by the police in a crowded street, the dog had within five hours bitten 41 persons. Though from 600 to 700 stray dogs and from 300 to 400 stray cats are killed every month in Ankara alone, the number of stray dogs and cat never diminishes, because new arrivals soon fill the vacancies. Veterinary stations give persons an opportunity to have their pets vaccinated free of charge.

Regulations concerning the scheme of treatment for the fourteen, twenty and twenty-four day Semple treatment advocated by the Ministry of Health have been forwarded to all eighty antirabic stations. Once a month a report on the stations' activities and observations to the Ministry of Health is required. Sixty years of antirabic institutions plus health propaganda through posters, pamphlets and radio talks have made people so aware of the danger of rabies that at the slightest hint of danger they apply for treatment.

Streptomycin Therapy in Tuberculous Meningitis

Before the Turkish Medical Society of Istanbul Dr. Huseyin Salor of the Pera (Istanbul) Municipal Hospital reported a case of tuberculous meningitis successfully treated with streptomycin. A student aged 17 was admitted to the hospital with a temperature of 38.5 (101.3 F.); he was semiconscious and vomited. As there was no localization he was given a sulfonamide drug, but the next day there developed a squint, stiffness of the neck and unconsciousness. Lumbar puncture produced a clear cerebrospinal fluid of high pressure, 150 Nageotte's cells (elements), 120 cg. of albumin and 0.50 cg. of glucose. Microscopic examination revealed only lymphocytes. The Pandy test gave a 3 plus reaction, the Wassermann test 2 plus and the tryptophane test 4 plus. Threads of fibrin floated at the bottom of the test tube containing cerebrospinal fluid. Kernig and Brudzinski signs were positive; moaning, delirium, photophobia and hypersensitivity appeared; the abdomen was sunken and the pulse was weak at 60 to 70 a minute. Twenty-five grams of streptomycin was procured. Treatment began on the eighth day from the onset and on the third hospital day. For seven days 2 Gm. of the drug was injected into the patient intraspinally; part of the solution was given intramuscularly. The improvement on the day after administration of the first dose was amazing. On the fourth day the squint, photophobia, hypersensitivity, stiffness of the neck and the headache had disappeared, the Kernig and Brudzinski signs decreased and the patient had regained consciousness and sat up in bed. After an interval of seven days the streptomycin treatment was repeated for ten days, but this time only 1 Gm. was given, of which 50 mg. was given intraspinally and the rest intramuscularly. At the end of the treatment the temperature had returned to normal. After another seven day interval a third series of 1.5 Gm. of streptomycin was begun, but on the sixth day the temperature began to rise and the patient had pain in the legs and was unable to void, streptomycin was discontinued and within two days the temperature returned to normal. The patient remained in the hospital for twenty more days and was given large doses of vitamins A, B_1 and C. He was now able to walk. He had received 43 Gm. of streptomycin. Against advice he was taken for convalescence to a resort near Bursa, where twenty-six days later and forty-four days after onset of the disease, symptoms reappeared. On readmission to the hospital the patient was delirious and violent, had slight fever and also a slight and high cerebrospinal fluid pressure. For four days he was given a daily dose of 1.5 Gm. of streptomycin of which every other day 100 mg. was given intraspinally and the rest intramuscularly. After a seven day interval he was again given a ten day treatment beginning with 1 Gm. daily, which was gradually reduced to 0.5 Gm. After another seven day interval, a third course of streptomycin treatment was given, so that the patient received a total of 96 Gm. His condition has greatly improved, but from time to time, accompanied by excitement and sometimes delirium, sudden severe headaches terminate with vomiting after one and a half hours. The cerebrospinal fluid pressure is still high; other reactions are negative. The patient, who for five and

a half months was subjected to many injections, refuses to submit to any more lumbar punctures. After he left the hospital only once has he permitted a lumbar puncture; then 20 cc. of fluid was taken, after which he was free from attacks for three days.

In the middle of 1946 streptomycin first came to Turkey. Its wider use depends on its price. It can be procured only from the Red Crescent Society and and only on prescription; priority is given to hospitals. Streptomycin sold in pharmacies costs $5 for 1 Gm.

ITALY

(From Our Regular Correspondent)

June 18, 1948

Efficacy of Antihistaminic Agents in Epilepsy

Lennox in the *Journal of Pediatrics* (29:356, Sept. 1946) says: "From the caveman to bromide, thousands of years; from bromide to phenobarbital, seventy-five years; from phenobarbital to diphenylhydantoin, twenty-five years; from diphenylhydantoin to trimethyloxazolidine dione, eight years. At this threefold rate of acceleration, we should have yet another effective remedy by the spring of 1948!" And in the spring of 1948 V.M. Buscaino, director, Neurologic Clinic, University of Naples, reported before the Campana section of the Italian Neurologic Society on the efficacy of small doses of antihistaminic agents in epilepsy. For months he and his pupil Lavitola administered to many patients with severe epilepsy an Italian antihistaminic product, the formula of which comes near to that of the Swiss "antistin" or the American "pyribenzamine." He observed that in the long run this treatment is superior to that with phenobarbital sodium. The attacks become less frequent and are of short duration when they occur. Buscaino has contended many times that epilepsy is always connected with an allergic mechanism. This point of view has been strengthened by a more detailed concept of some allergic reactions limited to certain organs, as in cases of glomerulonephritis from streptococcic infection of the tonsils (Lowell, F.C.: The Newer Concept of Allergy to Drugs and Bacteria, J.A.M.A. 136:665 [March 6] 1948) and in the paper by G. Bikel of the University in Geneva, on agranulocytosis of medicamentous origin. While Busciano's report received much attention in the Italian medical world, more profound proof is required. It seems likely that skin tests will be instituted, perhaps of the type suggested by Bukantz and Dammin in *Science* (107:224. 1948) by virtue of which the skin of epileptic patients before and after they have been treated with antihistaminic agents may be examined for fluorescence with ultraviolet rays after an injection of fluorescein. From these tests one may conclude whether the reduced incidence and the lesser severity of the attacks may be due to the effect of the antihistaminic agents on the neutralization of histamine.

Myocardial Infarction Following Intravenous Injection of Epinephrine

In *Il progresso medico*, May 1948, a paper by Mattioli deals with myocardial infarction following intravenous injection of epinephrine. Research by Meyer, Markwalder, Starling and Patterson revealed that epinephrine produces an acceleration of the coronary circulation. According to Brodie and Cullis, small doses of the drug cause vasoconstriction, but large doses, after a short phase of constriction, may produce vasodilatation, while exactly the reverse occurs in the other vessels. The first of Mattioli's 2 patients had a recurrence of malaria; because of resistance to quinine, treatment with epinephrine was instituted. With the third intravenous dose of epinephrine, which by mistake was 0.1 mg., the patient complained of sudden precordial pain and then of severe epigastric pain radiating to the neck, mandible and left shoulder. The pulse rate was 130, faint and arrhythmic. The patient had the feeling of dying. After several minutes the pulse rate dropped to 100 and became regular. The pain persisted. The man was given an injection of morphine-atropine. After a quarter of an hour the pain subsided. The blood pressure was 110 systolic and 80 diastolic. Next day the temperature was 37.6 C. (99.6 F.); the sedimentation rate was 22; the white blood cell count was 10,000. Electrocardiographic tracings revealed an extrasystole in lead 1, mild deflection in the QRS complex in all leads, presence of a Q wave in the second and third lead with an abnormal ST segment and a strongly negative T wave. The diagnosis was infarction of the posterior part of the left ventricle. The attack was repeated during the night, and the patient, aged 49, died.

The second patient, a man aged 51 who also had malaria, presented the same clinical picture after the intravenous injection of epinephrine. The electrocardiogram disclosed mild abnormalities in all the leads. The diagnosis was infarction of the posterior region of the left ventricle. Mattioli stated that one should not underestimate the effect of epinephrine, which is a highly valuable antiallergic drug; but as these cases revealed, treatment should be instituted only after making sure that the heart of the patient does not present some hidden anomaly which may be responsible for accidents in the office of the physician. Mattioli as well as Levine and Katz emphasized that epinephrine is innocuous in persons with a perfectly normal heart. But signs of arteriosclerosis may always be expected in persons over 45 years of age, particularly if in addition they have chronic malaria or other debilitating diseases.

Physician Imprisoned for the Epidemic of Varese

After a trial of more than one month and a verdict elaborated in sixteen hours, as reported in a previous letter, the physician of Varese who had been accused of disseminating by his imperfect technic an epidemic of "syringe hepatitis" was sentenced to serve five years in prison, to discontinue practice for 2 additional years and to compensate the families of the victims, of whom 12 had died and an additional 100 were infected. The entire nation has been interested. The sentence seems terrible, for in 1946 nobody in Italy knew anything about infection with hematogenous hepatitis through imperfect sterilization of the syringe. The physician of Varese gave no less than fifty intravenous injections of a tonic to his patients every day. Since then the Italian public has been told of the American literature, particularly the views of Dr. Thomas River, who spoke at the Annual Session, Atlantic City, N.J., June 13, 1947, and the paper on epidemic hepatitis by the Chicago doctors Capps, Sborov and Scheiffley, which appeared in THE JOURNAL, March 20, page 819.

The trial had aroused the entire medical profession in Italy because the incriminated physician had an excellent reputation. The defense council will apply to the Court of Appeal, but for the moment the physician, who had enjoyed liberty conditionally, has been imprisoned.

Correspondence

NEOSTIGMINE TOXICITY

To the Editor:—In "Clinical Notes," page 362 of THE JOURNAL, May 22, 1948, an article entitled "Neostigmine Toxicity" by Dr. George G. Merrill reports the first fatality presumably due to neostigmine to be found in the literature. As author of an article entitled "Intravenous Neostigmine in Diagnosis of Myasthenia Gravis," accepted for publication in the *Annals of Internal Medicine*, I feel obligated to comment on this report.

The standard test for myasthenia gravis proposed by Viets and Schwab, and referred to but not described by Dr. Merrill, consists of the intramuscular injection of 1.5 mg. of neostigmine methylsulfate in combination with 0.6 mg. (gr. 1/100) of atropine in a single ampule. In spite of over twelve years of intensive experience with this test by these authors at Massachusetts General Hospital, as well as its use in other institutions throughout the country during this time, no fatalities or extremely severe reactions have been reported. This fact has been confirmed in a personal communication from Dr. Viets received June 7, 1948. It is possible, as Dr. Viets points out, that this record has been achieved by the use of atropine with each injection and by the use of additional atropine immediately on the appearance of any untoward effects. However, it should be emphasized that in addition to its diagnostic use in myasthenia gravis, neostigmine has been employed extensively for postoperative distention, arthritis and neuromuscular disorders, as a test for pregnancy and in many other conditions too numerous to mention. For these various entities, it has been administered intramuscularly and orally, in most cases without atropine, and, until this case, no fatalities have been reported.

In our experience with the intramuscular use of neostigmine as a diagnostic agent in myasthenia gravis, the response in some of the milder cases was slow and somewhat indefinite. It seemed to me that intravenous neostigmine might give a more prompt and complete muscular recovery. Animal studies of neostigmine toxicity by Aeschlimann and Reinert (*Journal of Pharmacology and Experimental Therapeutics*, **43**:413-444, 1931) indicated that neostigmine was about twice as toxic intravenously as intramuscularly. Therefore, for the initial intravenous dose it was decided that one third the standard intramuscular dose, or 0.5 mg. (1 cc. of 1/2,000 solution) of neostigmine should be given in a timed one minute period. This test was first given to a myasthenic patient in 1942 and resulted in complete recovery of all muscular functions in less than two minutes, without any side effects whatsoever. A syringe containing atropine sulfate, 0.6 mg. (gr. 1/100), was kept in readiness at all times and has been given at the first sign of any untoward reaction. Atropine has not been given with neostigmine because, as Viets has pointed out, the usual heightened tolerance of myasthenic persons to parasympathetic stimulation by neostigmine is such that the occurrence of any side effects almost rules out the disease.

Since 1942 we have given intravenous neostigmine to several hundred patients and have seen side effects in only a few nonmyasthenic persons or persons with extremely mild myasthenia. These reactions consisted of mild abdominal cramping, muscle fasciculations, flushing and sweating, mild vertigo, nausea and diarrhea. The pulse rate was occasionally diminished but never more than 10 beats per minute, and the reduction in blood pressure was negligible. All reactions encountered were abolished in a few minutes without exception by the subcutaneous injection of 0.6 mg. (gr. 1/100) of atropine sulfate. Although we have never encountered a severe reaction with intravenous neostigmine, we would not hesitate to give atropine in even larger amounts intravenously should parasympathetic shock occur.

In 1942 there were only 4 cases on our records. Since that time we have diagnosed 30 more, many of which we feel would have gone undiagnosed were it not for this test.

Nevertheless, the report of a death occurring as a result of one-third the usual intramuscular diagnostic dose of neostigmine deserves careful analysis by all physicians interested in the diagnosis and treatment of myasthenia gravis. It is possible, as Dr. Merrill suggests, that the convulsion in this patient, spontaneous or induced, may have by its excessive neuromuscular activity produced an overwhelming amount of acetylcholine, protected by neostigmine, as it probably was, from destruction by cholinesterase. Moreover, as Dr. Merrill further suggests, the probability of an individual hypersusceptibility to neostigmine should be considered here. Cases of hypersusceptibility have been recorded in the literature to practically every active useful drug in the pharmacopeia.

Dr. Merrill should be complimented on promptly reporting this first case of fatality due to a drug as extensively used as neostigmine. This report should certainly inspire caution in those who would use the drug promiscuously without due regard for sound indication and contraindication. But it is to be hoped that the report will not unduly prejudice against the use of neostigmine in the diagnosis and treatment of myasthenia gravis, a disease in which it has achieved such a brilliant specific record

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To the Editor:—With great interest we noted the article of George Merrill in the May 22 issue of THE JOURNAL entitled "Neostigmine Toxicity: Report of Fatality Following Test for Myasthenia Gravis." To emphasize the advisability of awareness of the untoward reactions attendant on the use of neostigmine, we call attention to observations on patients in whom pulmonary edema developed after treatment with therapeutic doses of neostigmine orally in February 1947. Our report, in which we discussed the implications of the connection between neostigmine and pulmonary edema, was accepted for publication by *Annals of Internal Medicine* in December 1947.

E. ADELSON, M.D., AND F. BRUNN, M.D., New York.

STREAMLINING THE HEALTH EXAMINATION

To the Editor:—Just a word of caution in regard to streamlining the health examination. It may be true that sixteen symptoms, twenty-three physical abnormalities and six laboratory observations will enable the physician to recognize the two hundred diseases which trouble 98 per cent of patients (THE JOURNAL, May 15, p. 244). However, this implies that if the streamlined technic is used, the remaining 2 of every 100 patients who consult a physician will receive mistaken diagnoses and consequently inadequate or even harmful advice.

The chiropractor or faith healer with a magnetic personality prospers because nine times out of ten correct diagnosis and treatment are not a matter of life and death. It is the tenth fatality that makes him dangerous.

If physicians are content with slick ten minute opinions, 2 or 3 million people may suffer because they have not been given the careful consideration which is their due.

ROBERT W. BUCK, M.D., Boston.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Osteopaths: Right to Practice Optometry Without a License.—This was a suit under the declaratory judgment act for an adjudication that the defendant osteopath was not entitled to practice optometry and to enjoin him from so doing. From a judgment in favor of the defendant, the plaintiffs appealed to the Supreme Court of Arizona.

At the time of bringing this action, and for some time prior thereto, the defendant, a licensed osteopathic physician, was engaged in the practice of optometry. The defendant did not claim the right to so practice by virtue of a license under the optometry act but rather by reason of being a licensed osteopathic physician. Section 67-1407, A.C.A., 1939, being a part of article 14 regulating optometry, provides: "This article shall not apply to physicians licensed to practice under the laws of this state." The defendant contended that he is a 'physician" "licensed to practice under the laws of" Arizona, that the statutory provisions requiring a person to be licensed as an optometrist before practicing optometry therefore have no application as to him and that his license to practice osteopathy entitles him to engage in the business of prescribing and furnishing eyeglasses in the manner defined in the statute as constituting the practice of optometry.

The assignments of error raised one question: Is the defendent, a licensed osteopathic physician, authorized to practice optometry without obtaining a license under the optometry act? The plaintiffs contended that a person licensed to practice osteopathy is not a "physician" within the meaning of the optometry act and that a license to practice osteopathy does not authorize one to practice optometry.

The Arizona law regulating the practice of medicine provides for a board of medical examiners consisting of five members, four members to be graduates of schools recognized by the American Association of Medical Colleges and one to be a graduate of a recognized school of osteopathy. Three forms of certificates may be issued by this board of examiners: first, a certificate authorizing the holder thereof to practice medicine and surgery; second, a certificate authorizing the practice of osteopathy, and third, a reciprocity certificate. All applicants are subject to the same regulations, except that osteopaths, instead of filing a diploma from a legally chartered school of medicine, are required to file a diploma from a legally chartered college of osteopathy. Applicants for certificates as osteopathic physicians or as medical doctors are identified by number only, and identical questions on identical subjects are asked of all applicants. Under this law, the defendant was examined for his license to practice as an osteopathic physician. He took the identical examination taken by those seeking a license to practice as medical doctors and as a result of this examination was issued a certificate by said board of medical examiners to practice osteopathy within the state. The medical practice act section which defines the practice of medicine provides: "Practicing medicine shall include the practice of osteopathy."

It would seem, the court continued, that at all times our legislature has classified osteopaths with medical doctors, until a separate osteopathic board was established in 1941 which set up a somewhat different board of examiners and method of examination but did not materially change the qualifications and requirements. Under the original law the osteopath was authorized to practice medicine and under section 67-2103 of the amended osteopathy act it is provided that the "practice of medicine . . . by persons authorized under the (previous) laws of this state . . . shall in no way be affected by the provisions of this act." Thus, said the court, the legislature in its various acts has provided equal qualifications and requirements in the licensing of medical doctors and osteopaths; has provided that the practice of medicine shall include the practice of osteopathy; has referred to one practicing osteopathy, both in statute and in certificate, as an osteopathic physician; has provided that osteopaths may practice medicine and minor surgery, and, after two more years in a properly approved hospital, major surgery in osteopathically controlled hospitals or institutions. Furthermore, said the court, the narcotics act of Arizona defines a physician as "a person licensed to practice medicine, or osteopathy." To the court it therefore did not seem consistent that the legislature, in exempting "physicians" from the provisions of the optometry act, intended to except medical physicians but not osteopathic physicians. Nor did it seem consistent with reason, the Supreme Court concluded, that the criminal code of Arizona providing penalties for certain acts of a physician would exempt an osteopathic physician or that under the statute of privileged communication the patient of an osteopathic physician would not be given protection identical with that of the patient of a medical physician.

In conclusion, the Supreme Court said: "It seems that through our legislative history and background the word 'physician' has been employed in its generic and broad sense, and the intent to include osteopathic physicians seems to be clear. We cannot say that the legislature intended the word 'physician' in the Optometry Act to include only the medical physician and exclude the osteopathic physician." Accordingly the judgment in favor of the defendant was affirmed.—*Gates v Kilcrease, 188 P. (2d) 247 (Ariz., 1947).*

Dental Practice Acts: Constitutionality of Regulation of Dental Laboratory Technicians.— The state filed a petition to restrain the defendant, doing business as the Serv-U Dental Laboratory, from practicing dentistry without a license. From a judgment for the plaintiff, the defendant appealed to the Supreme Court of Alabama.

The Alabama dental practice act provides that a person shall be said to be practicing dentistry who constructs or repairs dentures from impressions made by anyone other than a licensed dentist and to be delivered to anyone other than a licensed dentist, "Provided, however, that nothing in this chapter shall prevent . . . any person . . . connected with a commercial dental laboratory from the performance of mechanical work on inanimate objects only in the construction or repair of dentures, . . . or other dental appliances, provided that impressions, casts or measurements for such work shall have been made or taken by a dentist licensed to practice as herein provided for, and that said construction or repair shall be done only on his or her authorization, and to be delivered only to a dentist licensed to practice as herein provided for."

The defendant, a dental laboratory technician, opened the Serv-U Dental Laboratory at Montgomery, Ala., and for some time performed his work under the instructions and authorization of licensed dentists and delivered the finished product to the dentist. Subsequently, however, he began doing certain work, such as repairing and replacing dentures, without instructions or authorizations from licensed dentists, dealing directly with those for whom the work was done and charging and collecting a fee therefor.

The defendant argued that the burden was on the state to prove that he was practicing dentistry as defined in the act and contended that proof that he repaired or duplicated existing dentures without the use of any impressions, or without the use of a model or cast made from an impression, was insufficient to prove the practice of dentistry, which was alleged to consist solely of the manufacture or delivery of dentures from a model or cast made from such impression. He insisted that the duplication or repair of existing dentures, without the use of any impression, or model or cast made from such an impression, did not constitute the practice of dentistry as defined by the statute.

To adopt such a rigid and literal construction of the statute forces a result which we think the legislature never intended, said the Supreme Court. The defendant admitted constructing dentures without instruction or authorization from a licensed dentist on models or casts prepared from existing dentures, which in turn had been made on a model or cast made from an impression taken by a licensed dentist. The dentures made by defendant were, in legal effect, the same as if the models used by him had been made from impressions taken by licensed dentists in the first instance. And they were made without instructions or authorization from a licensed dentist and were delivered, not to a licensed dentist, but directly to the person for whom made. We cannot cast aside our common sense in trying to arrive at the intent of the legislature, the Supreme Court continued. If there are reasons for requiring that dentures made from models or casts made from an impression be made only on the instructions or authorization of licensed dentists, the same reasons, unquestionably, require that the methods employed by the defendant should likewise be employed under the instructions or authorization of licensed dentists. The proviso makes it clear that the methods employed by the defendant or the services performed by him, as shown by the record, must be employed or performed only on the instructions or authorization of a licensed dentist, and that the finished product must be delivered to a licensed dentist. We are clear to the conclusion that such was the legislative intent. The methods of procedure employed by the defendant are, we think, but an effort to circumvent the plain intent of the legislature.

The defendant also contended that if the statute prohibits him from doing the work admittedly done by him in the manner shown, then it is unconstitutional and void because it contravenes the Fourteenth Amendment to the Constitution of the United States, and article I, section 6 of the 1901 constitution of the state of Alabama. As we understand it, the Supreme Court said, the defendant's argument in this regard is based on the following reasons: that the construction or repair of dentures in a commercial dental laboratory, or by a technician, by the performance of mechanical work on inanimate objects, is a separate occupation, that the statute prescribes no standards for qualifying to engage in that occupation and leaves to the arbitrary and unbridled discretion of individual dentists whether any person shall be permitted to engage in that occupation; that the right to earn a livelihood by following the ordinary occupations of life is a fundamental, natural, inherent and inalienable right, sacred and valuable, and fully protected by our fundamental laws. Under the police power, said the Supreme Court, the legislature may impose such restrictions on the practice of dentistry as the protection of the public may require. We think that the legislature could have legally prohibited anyone not a licensed dentist from doing the work authorized in the proviso and it is not unusual for a statute to provide that a person performing an act under instructions and with the authority of one duly licensed to do the act is not guilty of practicing without a license. The pertinent section of the Alabama dental practice act does not recognize the operation of a commercial dental laboratory, or any part of that operation, but provides that the construction or repair of dentures and dental appliances is a part of the practice of dentistry. It does permit the dentists to avail themselves of the services of a nondentist and of commercial dental laboratories, provided that the work is done on the dentist's instructions and authorization and that the completed product is delivered to the dentist. All persons not licensed to practice dentistry may engage in this work on exactly the same basis. The section does not deny to defendant, or anyone else so situated, any right guaranteed by the Constitution of either the United States or the state of Alabama. Accordingly, the judgment excluding the defendant from the practice of dentistry was affirmed. —*Weill v. State ex rel. Gaillard, 34 So. (2d) 132 (Ala., 1948).*

Medical Motion Pictures

FILM REVIEWS

A Clinic on Deafness. 16 mm., color, sound, 1,299 feet (one reel), showing time thirty-three minutes. Prepared in 1946 by Samuel J. Kopetzky, M.D., and Ralph Almour, M.D., Otolaryngological Service, New York Polyclinic Medical School and Hospital; New York. Produced by Medical Film Guild through a grant for postgraduate instruction in otology by the Auralgan Research Division. Procurable on loan from Medical Film Guild, 167 West Fifty-seventh Street, New York 19.

This film attempts by animation and actual photography at the operating table to present the known theories and the physiology of hearing, diagnostic methods to determine the hearing range and therapeutic methods, both medical and surgical. The authors present their own theories as to the physiology of hearing and deafness. One concerns itself with the function of Reissner's membrane and the other, the influence of a certain type of vitamin and endocrine administration on deafness. Both are still unestablished.

Apparently the authors would minimize reported results of success of the fenestration operation for otosclerosis. In charts they show results of the operative procedure and those in which the vitamin therapy was employed. The latter material is presented in such a way as to indicate to the viewer a wish to play down the value of the operation and to foster the nonauthentic results of medical therapy. This attitude is expressed even though a great many exposures are devoted to showing enlarged views of the fenestration procedure.

While admittedly the newer modalities of hearing reeducation in form of speech reading, amplification by hearing aids and auditory training have proved extremely valuable in the reeducation of the deaf, little of the film is devoted to this phase. As the film does not have sufficient material to justify its general acceptance, and because it represents one side of a number of questions, it certainly could not be classified as a teaching film to be shown to a group of postgraduates in otolaryngology. For the most part, the photography is excellent.

Modern Trends in Intravenous Therapy. 16 mm., color, silent, 890 feet (one reel), showing time thirty-seven minutes. Prepared in 1947-1948 by Robert L. Patterson, M.D., Department of Anesthesiology, and George L. Wessels, M.D., Allegheny General Hospital, Pittsburgh. Produced by Mervin W. La Rue, Inc., Chicago. Procurable on loan from Abbott Laboratories, North Chicago, Ill.

Preparation of standard intravenous trays followed by the administration of a simple venoclysis are presented. Supplemental injections of drugs through the air filter of a specific type of apparatus, as well as the connection of containers in series, are demonstrated. The use and value of the "venopak" disposable equipment are stressed.

The management of blood donors is discussed and demonstrated, followed by the illustration of the collection, examination and storage of blood and plasma. The freezing of plasma and its preparation for administration are shown. Blood is administered through the "venopak" disposable apparatus.

This film is of value mainly to those interested in the use of a specific type of apparatus and of the "venopak" disposable equipment or in some of the salient facts dealing with a blood bank. The use of the term A. C. D. solution for anticoagulant citrate dextrose solution, U.S.P. XIII, is not of educational value. The insertion of some text dealing with the indications for the use of plasma or blood would enhance the general value of this film. Demonstration of other types of apparatus now employed for modern parenteral therapy would be wise from the teaching standpoint.

Photography is excellent, artistic and colorful, although there is the impression that the substitution of more close-up views of procedures would be more instructive than some of the scenes in which faces of persons distract from the essential point being made. Perhaps elimination of rings on nurses' hands would be less distracting and more professional.

This film is recommended for medical students, hospital administrators, anesthesiologists, nurses and any physicians concerned with blood banks and parenteral therapy.

HIGH SPEED MOTION PICTURES OF THE HUMAN VOCAL CORDS. 16 mm., black and white, silent 750 feet (one reel), showing time thirty-one minutes. Produced by: Bell Telephone Laboratories, Procurable on loan from: Committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn Street, Chicago 10.

This film shows an apparatus developed by the Bell Telephone Laboratories for high speed photography (4,000 frames per second) of the human vocal cords. The camera, lighting system and technic used to obtain the mirror pictures of the larynx are illustrated, and a graphic demonstration of the meaning of speed of 4,000 frames per second is shown. Animation briefly describes the position and action of the vocal cords.

Mirror views taken during the production of various vowel sounds of different intensity and pitch are used to demonstrate the normal larynx. Differences in the action of the cords in the trained and untrained voice are shown. The effect on the larynx of changes in resonance produced by the use of helium gas and a closed oral cavity is presented In addition to these fundamental physiologic studies, the cords are shown during whispering, phonation on inspiration, the production of a falsetto note, and during cough. The physiology of phonation is thus illustrated, although attempt is not made to interpret the actions of the cords from the standpoint of controversial concepts of physiology or to draw any conclusions from the photographs themselves.

This film is without doubt an outstanding contribution to medical photography; nevertheless, the distribution of the film need not be limited to a medical audience. It should be suitable for showing to physiologists, otolaryngologists, medical students and lay audiences studying voice and speech problems.

Feeding The Infant During The First Year. 16 mm., black and white, sound, 1,100 feet (one reel), showing time twenty-four minutes. Prepared in 1947 by Alan Brown, M.D., F.R.C.P. (London), professor of pediatrics, Faculty of Medicine, University of Toronto, Canada. Produced by and procurable on loan from Mead Johnson & Company, Evansville 21, Ind.

This is a lecture type film with the use of a few charts based on the author's views of infant feeding. He is pictured standing at a podium delivering a lecture. The content is excellent. The film will be of especial interest to pediatricians and others interested in the subject. It will also be of interest to the author's multitude of former students, both undergraduate and graduate.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARD OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, July 10, page 988.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I & II.* Various centers, Sept. 13-15. Final date for filing application is Aug. 13. Exec. Sec., Mr. Everett S. Elwood, 225 South 15th St., Philadelphia 2. *Part III.* Boston and New York, Autumn. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written.* Various Centers, Jan. 21, 1949. Final date for filing application is Oct. 1. *Oral,* Philadelphia, Oct. 10, Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York 22.

AMERICAN BOARD OF DERMATOLOGY & SYPHILOGY: *Oral. Groups A & B.* Ann Arbor, Oct. 21-23. Final date for filing application is Aug. 2, 1948. *Written.* Ann Arbor, Sept. 9, Sec., Dr. G. M. Lewis, 66 E. 66th St., New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Oct. 18. Asst. Sec., Dr. W. A. Werrell, 1 W. Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, June 1949. Final date for filing application is Jan. 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Part I.* Various Centers, Feb. 4, 1949. Final date for filing application is Nov. 1. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh 1.

AMERICAN BOARD OF ORTHOPEDIC SURGERY: *Part II.* Chicago, January 1949. Final date for filing application is August 15. Sec., Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* Chicago, Oct. 5-8. New York City, Spring, 1949. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PATHOLOGY: Chicago, Oct. 8-9. Final date for filing application is Oct. 1. Sec., Dr. Robert A. Moore, 507 Euclid Ave., St. Louis.

AMERICAN BOARD OF PEDIATRICS: Seattle, Sept. 10-12. Atlantic City, Nov. 17-19. *Written.* July 30. Sec., Dr. Lee F. Hill, 718 Royal Union Bldg., Des Moines, Iowa.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in June and November of each year in the hometown of applicants. Sec.-Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

AMERICAN BOARD OF RADIOLOGY: Nov. Final date for filing application is Sept. 1. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W. Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* March 1949. Final date for filing application is Dec. 1. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: Chicago, Feb. 12-16, 1949. Final date for filing application is Sept. 1. Sec., Dr. Harry Culver, Route #13, Sunnyside Rd., Minneapolis 4.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis
35:161-368 (Feb.) 1948. Partial Index

Immediate Electrocardiographic Effects of Circumscribed Myocardial Injuries: Experimental Study. R. D. Pruitt and F. Valencia. -p. 161.
Varied Clinical Syndromes Produced by Dissecting Aneurysm. S. Baer and H. L. Goldburgh. -p. 198.
Effect of Local Compression upon Blood Flow in Extremities of Man. M. H. Halperin, C. K. Friedland and R. W. Wilkins. -p. 221.
Functional Pathology of Experimental Immersion Foot. K. Lange, D. Weiner and L. J. Boyd. -p. 238.
Therapy Directed at Somatic Component of Cardiac Pain. S. H. Rinzler and Janet Travell. -p. 248.
*Combined Heparin-Dicumarol Therapy of Myocardial Infarction. Clinical and Pathologic Study. Helen I. Glueck, V. Strauss, J. S. Pearson and J. McGuire. -p. 269.
Determination of Prognosis of Pregnancy in Rheumatic Heart Disease. J. J. Bunim and Jeanette Rubricius. -p. 282.
Newer Concept of Stokes-Adams Syndrome. S. Schnur. -p. 298.
Analysis of Causes of Right Axis Deviation Based Partly on Endocardial Potentials of Hypertrophied Right Ventricle. C. E. Kossmann, A. R. Berger, J. Brumlik and S. A. Briller. -p. 309.
Fluorocardiography (Electrokymography): I. Technical Aspects. A. A. Luisada, F. G. Fleischner and M. B. Rappaport. -p. 336.

Heparin-"Dicumarol" Therapy of Myocardial Infarction.—Combined heparin-"dicumarol" therapy has been used by Glueck and associates in 25 cases of acute myocardial infarction. The control group of 25 patients was obtained by omitting anticoagulants in every other patient with myocardial infarction admitted to the hospital. Supportive treatment was identical in the treated and untreated cases. Although the series of cases is too small, and the variables of the disease itself too wide to make statistical analysis significant, it appears that the use of heparin-"dicumarol" adds no additional hazard to the treatment of acute myocardial infarction. There were 8 deaths in the control series and 3 deaths in the series treated with the anticoagulants. In the 3 treated cases that were fatal, necropsies revealed neither mural thrombosis nor embolism, although 2 of the patients died within forty-eight hours after the onset of symptoms. One patient showed incomplete rupture of the ventricle with hemorrhage into the pericardium. Emboli occurred in 6 of the 25 cases in the control series and possibly in 1 of the 25 cases with anticoagulant therapy.

American Journal of Clinical Pathology, Baltimore
18:101-184 (Feb.) 1948

Medicine's New Frontiers. E. L. Bortz. -p. 101.
Effect of Urethane on Malignant Diseases: Clinical, Hematologic and Histologic Observations on Patients with Carcinoma, Leukemia and Related Diseases. L. Berman and A. R. Axelrod. -p. 104.
Diagnosis of Histoplasmosis in Ulcerative Disease of Mouth and Pharynx. L. A. Weed and Edith M. Parkhill. -p. 130.
*Therapy of Severe Erythroblastosis Fetalis with Repeated and Massive Exchange Transfusions. A. S. Wiener, I. B. Wexler and A. Shulman. -p. 141.

Exchange Transfusions in Severe Erythroblastosis Fetalis.—Wiener and his co-workers report 2 cases in which antepartum Rh tests indicated that stillbirths were inevitable if the pregnancies were allowed to go to term. The pregnancies were terminated prematurely by cesarean section and the infants were treated by exchange transfusion. In the first case an exchange transfusion of 500 cc. of blood was given. When the infant exhibited progress of the disease despite the treatment, a second exchange transfusion was given on the following day, after which the disease was arrested and recovery followed. In the second case an infant weighing only 4½ pounds (2,041 Gm.) at birth received a massive exchange transfusion in which 1,000 cc. of blood was injected and 950 cc. removed. This infant became jaundiced but did not show signs of toxicity, and the jaundice cleared within a fortnight. The gratifying results obtained in these 2 difficult cases most likely can be ascribed to the more complete replacement by Rh-negative cells of the infants' Rh-positive cells which were coated by antibody. Certain simplifications in the technic of exchange transfusion are described which speed up the procedure and make it less tiring to both the patient and the operators.

American J. Digestive Diseases, Fort Wayne, Ind.
15:41-72 (Feb.) 1948

Degenerative Vascular Lesions and Diabetes Mellitus. E. B. Millard and H. F. Root. -p. 41.
*High Serum Acetylcholine Concentrations in Pernicious Anemia and Their Reduction by Effective Therapy. J. C. Davis. -p. 52.
Pteroylglutamic Acid Displacing Agents. G. J. Martin, S. Avakian, L. Tolman and others. -p. 55.
Management of Pruritus Ani in the Armed Forces. M. M. Marks. -p. 56.
Treatment of Pruritus Ani by Local Applications of Aluminum Hydroxide Gel. M. H. F. Friedman, B. F. Haskell and W. J. Snape. -p. 57.
Bacteriology of Diarrheal Diseases. A. J. Cantor. -p. 60.

High Serum Acetylcholine Concentrations in Pernicious Anemia.—According to Davis, continued injections of acetylcholine into dogs caused hyperchromic anemia which was responsive to antipernicious anemia treatment. A relatively simple method recently developed for the estimation of acetylcholine in serum made it possible to determine the concentration of this substance in the serum of anemic human beings. Serum cholinesterase activity was also estimated in anemic as well as apparently normal subjects. Five patients with pernicious anemia in relapse were found to have serum acetylcholine concentrations ranging from 15 to 33 micrograms per hundred cubic centimeters. These values were reduced to from 6.6 to 8.2 micrograms per hundred cubic centimeters, as observed on the fourth to seventh days of effective treatment, with pteroylglutamic acid, liver extract or "ventriculin" (proprietary preparation of desiccated hog stomach). Six healthy persons with normal erythrocyte counts had acetylcholine concentrations varying from 6.6 to 8.2 micrograms per hundred cubic centimeters of serum. Six patients with secondary anemia were observed to have serum acetylcholine concentrations which varied from 6.6 to 9.9 micrograms per hundred cubic centimeters. Serum cholinesterase activity was low only in the severest anemias. The presence of a high concentration of acetylcholine in the serum of patients

with pernicious anemia during relapse raises the question whether the excess of this chemical might possibly be the ultimate chemical cause of the disease. This suggestion becomes more of a probability in view of the fact that acetylcholine has been shown to be capable of producing a hyperchromic anemia in dogs which is responsive to all treatments effective against pernicious anemia. Also in favor of this idea is the fact that the effective treatment of pernicious anemia reduces the acetylcholine concentration of the serum to normal before any increase in the erythrocyte count has occurred.

American Journal of Public Health, New York 38:191-318 (Feb.) 1948. Partial Index

Recent Developments in Cancer Control. A. V. Deibert. -p. 191.
Cell Smear Method of Diagnosing Cancer. G. N. Papanicolaou. -p. 202.
Public Health Nursing in Cancer Control Program of U. S. Public Health Service. Rosalie I. Peterson. -p. 206.
Epidemiology of Colorado Tick Fever. L. Florio and Mabel S. Miller. -p. 211.
Post-War Public Health Problems in a Large American City. B. H. Douglas. -p. 214.
City Department of Health Program on Improvement of Mechanical Dishwashing. W. L. Mallmann, L. Zaikowski and D. Kahler. -p. 239.
Test for Detergents. W. G. Walter. -p. 246.
Recent Trends in Vital Statistics Registration Practices. A. E. Bailey. -p. 253.

American Journal of Surgery, New York 75:269-414 (Feb.) 1948

Leiomyoma Within the Substance of Sphincter. J. D. Charles and R. McCarty. -p. 290.
Primary Postoperative Hemostatic Prophylactic Dressing in Anorectal Surgery. M. C. Pruitt. -p. 292.
Relation of Functional to Organic Diseases of Anus, Rectum and Sigmoid Colon. H. C. Schneider. -p. 296.
Evaluation of Anorectal Complaints. L. E. Brown. -p. 303.
Pyribenzamine: Its Role in Treatment of Pruritus Ani. F. M. Frankfeldt. -p. 307.
Rational of Therapy in Pruritus Ani. Rachelle Seletz. -p. 313.
*Modern Surgical Treatment of Hemorrhoids and New Rectoplasty. A. G. Carmel. -p. 320.
Surgical Treatment of Chronic Ulcerative Colitis. G. W. Ault. -p. 325.
Chronic Diarrheas. J. S. D'Antoni. -p. 332.
Evaluation of Roentgenologic Diagnosis of Lesions of Rectum and Sigmoid. W. W. Green. -p. 348.
Treatment of Complete Prolapse of Rectum. H. T. Hayes, and H. B. Burr. -p. 358.
Diagnosis and Treatment of Papillary Adenomas of Rectum. G. E. Binkley and D. A. Sunderland. -p. 365.
Diagnosis and Treatment of Mucosal Polyps of Rectum and Colon with Early Malignant Change. N. W. Swinton. -p. 369.
Extrarectal and Extrasigmoidal Masses: Proctosigmoidoscopic Interpretation and Evaluation. J.C.M. Brust. -p. 380.
*Primary Resection of Colon and Rectum with Particular Reference to Cancer and Ulcerative Colitis. O. H. Wangensteen and R. W. Toon. -p. 384.
Posterior Levator Space Abscess. H. Courtney. -p. 405.

Treatment of Hemorrhoids and New Rectoplasty.—Carmel stresses that patients with extensive hemorrhoids pose a problem. If all the involved tissues are removed contractures are prone to follow. If all the abnormal tissue is not removed, the symptoms may not be eradicated completely or early recurrence may ensue. Contributions toward the solution of the dilemma include the creation of anal flaps in prolapsed strangulated hemorrhoids, suturing of the superior cut edge of the mucous membrane to the proximal fibers of the external sphincter muscle and creation of three or four isthmuses by suturing the cut mucous membrane to the corresponding cut skin and employing available external tags to aid in forming the isthmus while allowing the rest of the wounds to granulate. The author employs sliding skin grafts and relaxation incisions and occasionally anusotomy to aid in filling defects of the anal canal and to prevent contractures. After the hemorrhoidal tissues have been removed a graft is prepared by making an incision in the perianal skin about 1.5 to 2 cm. lateral to one or more of the wounds made by the dissection of the external hemorrhoids. At each end of this incision a radiating cut is made, thus creating a segment of skin detached at all its edges and attached only by its deep surface and capable of being slid without tension well up into the anal canal to the level of the cut edge of the mucous membrane. The medial edge of this skin graft is sutured to the superior portion of the external sphincter muscle and to the mucous membrane, which is not pulled down but rather the skin is pulled up to it. Thus, the anal canal becomes relined by tissue of ectodermal origin and the mucocutaneous border is reestablished at the proper level. Sometimes the incision which is made lateral to the anal margin releases the tension sufficiently to allow the skin to be pulled up to cover the defect completely, making it unnecessary to add the radiating cuts.

Primary Resection of Colon and Rectum.—Wangensteen and Toon review the experience at their clinic with restoration of intestinal continuity after excision of primary cancer of the rectosigmoid and rectum. They conclude that for all lesions in the rectosigmoid area 14 to 20 cm. from the anus the conservative operation affords the patient as satisfactory a prospect of cure as does the abdominoperineal operation. For lesions in the lower rectal segment, at 8 cm. or less from the anus, the conservative operation is not a good operation for primary rectal cancer, because it does not deal effectively with the invisible lateral spread of cancer as does the more radical abdominoperineal resection. In low-lying lesions a fairly high incidence of local recurrence strongly suggests that salvage of the rectal sphincters is accomplished at the risk of failing to cure the cancer. For suitable lesions in the midrectal segment, over 8 cm. from the anus, the conservative operation appears to be as satisfactory as the abdominoperineal; however, for fixed lesions, the abdominoperineal operation, undoubtedly the most radical operative procedure available, offers some advantage. Experience with low anastomosis is reviewed in a miscellany of indications in which the lesion together with a portion of the rectum was excised with reestablishment of intestinal continuity. The authors also recount the experience with primary restoration of intestinal continuity after excision of subtotal lengths of the colon and rectum for patients having chronic ulcerative colitis. The importance of preservation of the internal sphincter for the maintenance of fecal continence cannot be overemphasized. A satisfactory anastomosis made by the suture method 3 to 4 cm. above the pectinate line assures complete continence.

American Review of Tuberculosis, New York 57:115-204 (Feb.) 1948

Tuberculosis in Europe After Second World War. J. Holm. -p. 115.
Tuberculosis in South America. H. O. Puelma. -p. 129.
Tuberculosis Problem in the Philippines. Role of Philippine Tuberculosis Society and Other Agencies and Present Postwar Organization. M. Canizares. -p. 149.
Tuberculosis in Australia. E. Bogen. -p. 155.
Streptomycin-Resistant Tubercle Bacilli; Effects of Resistance on Therapeutic Results in Tuberculous Guinea Pigs. W. H. Feldman, A. G. Karlson and H. C. Hinshaw. -p. 162.

Arkansas Medical Society Journal, Fort Smith
44:199-216 (Feb.) 1948

Trends in Medical Education. H. C. Chenault. -p. 199.
*Nitrogen Mustard Treatment in Chronic Myelogenous Leukemia. W. H. Siddon and B. B. Wells. -p. 203.
Diagnosis of Respiratory Virus Infections. J. T. Culbertson. -p. 206.
Round Table of Committee on Maternal and Child Welfare. I. F. Jones. -p. 208.

Nitrogen Mustard in Myelogenous Leukemia.—Siddon and Wells review the present status of nitrogen mustards (beta-chloroethylamines) in the treatment of cancer. They report 3 cases of chronic myelogenous leukemia in which patients were treated with methyl-bis (beta-chloroethyl) amine hydrochloride. The results arouse no great enthusiasm for this form of therapy. It is suggested that the combination of roentgen therapy and nitrogen mustard treatment may be expected to produce more beneficial effects than either of the two when applied alone.

Bulletin New York Academy of Medicine, New York
24:73-134 (Feb.) 1948

Psychologic Aspects of Obesity. Hilde Bruch. -p. 73.
Studies in Intermediary Metabolism Conducted with Aid of Isotopic Tracers. D. Stetten Jr. -p. 87.
Penicillin Treatment of Syphilis with Some Remarks in Retrospect of Syphilotherapy Over One Hundred Years. H. N. Cole. -p. 97.
Surgical Management of Diabetes Including Amputations. G. H. Pratt. -p. 111.

24:137-206 (March) 1948

Renal Tubule Work: Its Significance for Clinician. L. H. Newburgh. -p. 137.
Disturbances in Electrolyte Metabolism in Man and Their Management. D. C. Darrow. -p. 147.
Metabolism in Old Age. N. W. Shock. -p. 166.
Use of Androgens in Men. C. G. Heller and W. O. Maddock. -p. 179.

Canadian Medical Association Journal, Montreal
58:227-316 (March) 1948

Surgical Use of Streptomycin. H. S. Morton. -p. 227.
Chronic Brucellosis: Diagnosis and Treatment. E. P. Scarlett. -p. 230.
*Examination of Sputum for Tumor Cells. W. H. Mathews. -p. 236.
Intestinal Obstruction. W. H. Cole. -p. 241.
*Diagnosis of Congenital Heart Disease. J. D. Keith. -p. 247.
Treatment of Menopause. L. J. Harris. -p. 251.
Meningitis in Childhood. N. Silverthorne. -p. 255.
Sequelae of Local Exposure to Cold. D. R. Webster. -p. 258.
Estimation of Serum Acid Phosphatase in Diagnosis of Metastasizing Carcinoma of Prostate. E. H. Bensley, Phyllis Wood, Sallie Mitchell and Betty Milnes. -p. 261.
Obscure Causes of Heart Failure. F. G. Allison. -p. 265.
Diagnosis and Treatment of Ménière's Symptom Complex. P. E. Ireland. -p. 269.
Plasma Proteins in Heart Failure. S. J. Shane. -p. 274.

Examination of Sputum for Tumor Cells.—Mathews states that examination of sputum for tumor cells as an aid in the diagnosis of bronchogenic carcinoma is not a new procedure. Prior to 1935 sporadic attempts to use this method of examination had little success except in occasional instances where fragments of tumor were expectorated. In that year Dudgeon and Wrigley first reported good results, and subsequently Dudgeon in 1936 and Barrett in 1938 reviewed the results achieved at St. Thomas's Hospital in London. In 1946 Papanicolaou reported positive results in 22 of 25 cases of proved bronchogenic carcinoma, and in 1947 Woolner and McDonald from the Mayo Clinic recorded positive results in 80 per cent of cases by use of a smear technic. The author reviews examinations of sputum for tumor cells at the Central Division of the Montreal General Hospital in the two year period 1945 to 1947. A positive diagnosis was made in 24 of 33 cases, either proved or reasonably certain of being bronchogenic carcinoma. A false positive diagnosis was made once in each of 2 cases. There were 9 cases in which the sputum was not demonstrated to contain tumor cells, 7 of these being proved by necropsy, biopsy or operation, and 2 cases having a probable clinical and radiologic diagnosis of bronchogenic carcinoma.

Diagnosis of Congenital Heart Disease.—Keith discusses the more commonly seen types of congenital heart disease in both the cyanotic and noncyanotic groups and outlines the cardinal points in diagnosis. He compares the value of the intracardiac catheter and angiocardiography. Both are necessary diagnostic aids in certain cases in which the pathologic process is not clarified by ordinary clinical means. Accurate diagnosis has become exceedingly important now that surgery offers treatment to many of these children.

Connecticut State Medical Journal, Hartford
12:97-192 (Feb.) 1948

On Boeck's Sarcoids. I. Snapper. -p. 99.
Clinical Significance of Changes in Small Intestinal Function. F. J. Ingelfinger. -p. 106.
Results of Treatment of Carcinoma of Body of Uterus. E. T. Bradley. -p. 112.
Radiation Therapy of Carcinoma of Cervix. J. P. Connolly. -p. 114.
Pentothal, Nitrous Oxygen, Curare Anesthesia. J. Brody. -p. 116.
Bilateral Renal Tuberculosis in Pregnancy. H. R. Newman and H. Levine. -p. 119.
Care of Crippled Children in Connecticut. L. Spekter. -p. 120.
Review of Otolaryngology in Connecticut, Particularly in New Haven County. M. H. Merriman. -p. 129.

Gastroenterology, Baltimore
10:177-348 (Feb.) 1948

Protein Hydrolysate Therapy in Peptic Ulcer. Controlled Study. B. Kenamore, W. Lonergan and J. C. Shy. -p. 177.
Recurrence in Duodenal Ulcer Under Medical Management. C. A. Flood. -p. 184.
*Mechanism of Relief of Ulcer Distress by Gastric Vagotomy. L. R. Dragstedt, E. R. Woodward, P. V. Harper and E. H. Storer. -p. 200.
Bilateral Vagotomy in Treatment of Peptic Ulcer. E. N. Collins and C. W. Stevenson. -p. 205.
Gastroscopic Observations in Secondary Syphilis. R. Schwartz. -p. 227.
*Gastroscopic Appearance of Gastric Mucosa Before and After Vagotomy. R. Wolff. -p. 231.
Gastroscopic Differentiation of Benign and Malignant Gastric Ulcer. R. Schindler. -p. 234.
Studies on Mucus in Human Stomach: Estimation of Its Protective Action Against Corrosive Chemicals Applied to Gastric Mucosa and Attempts at Quantitation of Gastric Mucin by Two Chemical Methods. S. Wolf and H. G. Wolff. -p. 251.
Studies on Nocturnal and 24 Hour Gastric Secretion During Injection of Enterogastrone Concentrate in Man. J. B. Kirsner, E. Levin and W. L. Palmer. -p. 256.
Preliminary Observations on Histamine and Insulin Stimulated Gastric Secretion During Injection of Enterogastrone Concentrate in Man. E. Levin, J. B. Kirsner and W. L. Palmer. -p. 274.
Effect of Odors on Appetite. R. S. Ginsberg, M. Feldman and H. Necheles. -p. 281.
Amebiasis: Observations in 333 Cases. M. Ellenberg, J. H. Peyton, J. T. Gilmore and S. Klein. -p. 286.
*Experimental Evaluation of Ligature of Stomach Vessels for Peptic Ulcer. I. D. Baronofsky. -p. 301.
Response of Colonic Mucosa to Local Application of Sympathomimetic and Parasympathomimetic Drugs. M. Shoshkes. -p. 305.

Relief of Ulcer Distress by Vagotomy.—Dragstedt and his associates cite factors which indicate that the relief obtained by vagotomy is not due to

anesthesia of the stomach, because the introduction of a solution of hydrochloric acid into the stomach during the first three or four days after the operation reproduces the pain. Trauma to the vagus nerves, including pinching, tying and cutting these structures in the patient under spinal anesthesia, does not produce pain. The sensation of hunger is not abolished by complete gastric vagotomy. Fear of perforation of a peptic ulcer without pain after gastric vagotomy, therefore, is a probably unfounded. The same, however, cannot be said after thoracolumbar sympathectomy. With the increasing employment of this procedure in the treatment of hypertension, more patients are being encountered who have both peptic ulcer and hypertension. There is some evidence that sympathectomy in these cases may cause rapid progression in the ulcer, but at the same time, produce relief of pain so that a painless perforation may occur. There is thus good reason to believe that the sensory nerves involved, both in the characteristic ulcer distress and in the pain produced by the liberation of the gastric content in the peritoneal cavity, are in the sympathetic nerves and not in the vagus nerves.

Gastroscopic Appearance of Mucosa After Vagotomy.—Since resection of the vagus nerves for peptic ulcer causes important changes in gastric physiology, namely, a precipitous decline of secretory activity and a lessening of motor power, Wolff decided on an investigation of the gastric mucosa before and after vagotomy. Eleven patients with peptic ulcer were subjected to gastroscopic examination before resection of the vagus nerves by the transthoracic approach. Eight patients had had roentgenographic evidence of duodenal ulcer and 3 had gastric ulcer. The gastric mucosa had a normal appearance in all but one of the patients with duodenal ulcer, and except for the ulcer craters the patients with gastric ulcer also had a normal mucosa. Repeated gastroscopic examination made eight days to eleven months after vagotomy revealed vast changes. The gastric lumen tended to be flabby, requiring large quantities of air for its inflation, due to loss of tone. Orientation landmarks within the stomach were altered: blunting of the angulus occurred, and obliteration of the antral sphincter was the rule. Ten patients had solid food in their stomachs partially blocking views of the greater curvature even though no examination was done less than fifteen hours after eating. Rugae remained on the greater curve in all cases although they often were shallower and wider apart than in the normal stomach. The mucosa itself was dull, reddened and lacked luster in 7 cases and was of normal appearance in 4. The retention of food may account for deepening in color and loss of brilliance.

Ligature of Arteries of Stomach for Gastric Ulcer.—Baronofsky describes experiments on dogs which demonstrate that ligation of three of the large arteries of the stomach, and additional small ones coming from the gastroepiploic arteries, fails to protect against the histamine-provoked ulcer.

Illinois Medical Journal, Chicago

93:65-120 (Feb.) 1948

Lancaster's Technic of Cataract Extraction: Author's Recent Modifications with Report of 125 Consecutive Cases. K. L. Roper. -p. 81.
Carcinoma of Large Bowel: Analysis of 237 Patients Treated at St. Luke's Hospital, Chicago, 1934-1944. Lucille A. Sprenger. -p. 92.
Successful Use of Penicillin in Treatment of Subacute Bacterial Endocarditis. E. W. Cannady. -p. 94.
Diagnosis and Treatment of External Otitis. P. A. Campbell. -p. 98.
Chronic Amebiasis of Cecum. R. B. White. -p. 102.
Use of Ascorbic Acid on Inflamed Tissue. E. Poser. -p. 106.
Alleged Food Poisoning by Salmonella Group. W. D. McNally. -p. 108.
Complete Pelvic Floor Laceration Six and One-Half Months Pregnancy. C. W. Barrett. -p. 110.

Journal of Immunology, Baltimore

58:109-222 (Feb.) 1948

Changes in Embryonated Eggs Inoculated with Influenza Virus. A. S. Parodi, S. Lajmanovich, F. Pennimpede and N. Mittelman. -p. 109.
Effect of Mixtures of Sulfonamides and Urea Derivatives on Bacterial Growth in Vitro. D. J. Tenenberg, H. M. Tsuchiya, W. G. Clark and Nora Larson. -p. 121.
Nutrition and Resistance to Infection: Effect of Quantitative and Qualitative Protein Deficiency on Bactericidal Properties and Phagocytic Activity of Peritoneal Fluid of Rats. K. Guggenheim and E. Buechler. -p. 133.
Reactivation of Overneutralized Influenza Virus in Chicken Embryos. A. P. McKee and W. M. Hale. -p. 141.
Antagonism of Coliform Bacteria Against Shigellae. S. P. Halbert. -p. 153.
Critical Analysis of Performance of Photronreflectometer in Measurement of Serologic and Other Turbid Systems. E. T. Bolton, C. A. Leone and A. A. Boyden. -p. 169.
Studies on Tularemia: IV. Observations on Tularemia in Normal and Vaccinated Monkeys. L. L. Coriell, Elizabeth O. King and Margaret G. Smith. -p. 183.
Observations on Antibiotic Coaction of Gramicidin and Penicillin on Streptococci and Staphylococci in Vitro. E. J. Foley and S. W. Lee. -p. 203.
*Antibody Response in Human Beings Inoculated With Japanese Encephalitis Vaccine, Chick Embryo Type. J. Warren, J. E. Smadel and A. F. Rasmussen. -p. 211.

Antibody Response to Japanese Encephalitis Vaccine.—Warren and his associates found that Japanese encephalitis vaccines which were prepared from infected mouse brain or chick embryo tissue, and were of adequate potency as measured by the standard mouse protective test, were equally effective in immunizing human beings when the vaccines were administered to soldiers in two doses of 2 cc. each given four days apart. In approximately 30 per cent of the men neutralizing antibodies developed following immunizations with either vaccine. In subjects immunized with 3 cc. of chick embryo vaccine given subcutaneously in doses of 1 cc. on the first, seventh and thirtieth day neutralizing antibody developed with twice the frequency obtained with the first schedule. Similar results were obtained in a small group of persons who received three intracutaneous injections of 0.1 cc. each of vaccine over a period of a month. A recall dose of vaccine administered subcutaneously to 8 persons one year after vaccination elicited a significant rise in neutralizing antibody in 5 cases. A recall dose of 0.1 cc. injected intradermally into another group of 8 previously vaccinated persons resulted in a decided rise in the serum neutralization index of all 8.

Journal of Investigative Dermatology, Baltimore

10:39-90 (Feb.) 1948

Use of Rutin in Hereditary Hemorrhagic Telangiectasia: Case Report. E. P. Cope and R. W. Grower. -p. 39.
Local Therapy with Pyribenzamine Hydrochloride. M. B. Sulzberger, R. L. Baer and H. B. Levin. -p. 41.
*Mycosis Fungoides (Granuloma Fungoides), Tumor Stage, Responding Rapidly to Antimony Preparations: Preliminary Report. J. Garb. -p. 43.
Simple Quantitative Method for Laboratory Assay of Fungicides. A. M. Kligman and W. Rosensweig. -p. 51.
Studies with New Fungistatic Agents: I. For Treatment of Superficial Mycoses. A. M. Kligman and W. Rosensweig. -p. 59.
Study of Distribution of Penicillin in Blister Fluid After Parenteral and Topical Application. A. Dostrovsky, J. Gurevitch and R. Bozansky. -p. 69.

Reactions to Penicillin Therapy for Syphilis. E. W. Thomas, S. Landy and Corinne Cooper. -p. 77.
Iontophoresis of Pyribenzamine Hydrochloride in Pruritic Dermatoses. T. H. Aaron, S. M. Peck and H. A. Abramson. p. 85.

Mycosis Fungoides Responding to Antimony Preparation.—Garb presents the case of a woman, aged 49, who had histologically confirmed lesions of mycosis fungoides in the tumor stage. She was given ten intravenous injections of antimony and potassium tartrate and these were followed by thirty-two intramuscular injections of "stibanose" (diethylaminoethenal salt of sodium antimony gluconate). Soon after this treatment began the lesions showed improvement. After seven months of treatment in the course of which 2.8 Gm. of antimony had been given only a few isolated lesions remained. No new lesions developed during treatment. Since the presentation of this case in October 1947, reports on encouraging results from this treatment in 3 other cases have been received. The author thinks that because of the possible relationship of mycosis fungoides and all the other reticuloendotheliosses and hyperplasias and tumors such as Hodgkin's disease, Kaposi's sarcoma, lymphosarcoma, leukemias and parapsoriasis en plaques, the experimental therapeutic use of the antimony preparations in this group of diseases appears to be indicated.

Journal of Lab. and Clinical Medicine, St. Louis

33:135-256 (Feb.) 1948. Partial Index

Rectal Absorption of Penicillin. E. E. Mandel and J. D. Thayer. -p. 135.
Parenteral Nutrition. H. S. Collins, Lisbeth M. Kraft, T. D. Kinney and others. -p. 143.
Studies on Conglutination Test in Erythroblastosis Fetalis. A. S. Wiener and Eve B. Gordon. -p. 181.
Study of Cholinesterase Activity of Blood of Patients with Pernicious Anemia. L. M. Meyer, A. Sawitsky, N. D. Ritz and H. M. Fitch. -p. 189.
Comparison of Methods Used for Hydrolysis of Conjugated Urinary Estrogens. J. T. Van Bruggen. -p. 207.
Studies on Chemotherapy of Filariasis: VI. Some Pharmacodynamic Properties of 1-Diethylcarbamyl-4-Methylpiperazine Hydrochloride, Hetrazan. B. K. Harned, R. W. Cunningham, Sybella Halliday and others. -p. 216.

Journal of Thoracic Surgery, St. Louis

17:1-142 (Feb.) 1948

*Dorsal Sympathetic Ganglionectomy for Intractable Asthma. D. Carr and H. Chandler. -p. 1.
Arteriovenous Fistula of Lung. H. C. Maier, A. Himmelstein, F. L. Riley and J. J. Bunim. -p. 13.
Surgical Treatment of Solitary Lung Metastasis. D. B. Effler and B. Blades. -p. 27.
Extrapleural Pneumothorax. Late Follow-Up of 82 Patients on Whom Ninety-Two Operations were performed. H. Sullivan. -p. 38.
Experimental Study of Effect of Ligation of Pulmonary Veins in the Dog. H. Swan and R. M. Mulligan. -p. 44.
Bronchiectasis in Service Personnel. R. C. Laird. -p. 57.
Pneumopyopericardium. H. W. Meyer. -p. 62.
Medical Treatment of Acute and Chronic Pulmonary Abscesses. D. T. Smith. -p. 72.
Thoracic Casualties from an Island Campaign in the Pacific. F. Raine and D. B. Jennison. -p. 91.
Traumatic Diaphragmatic Hernia. F. Hughes, E. B. Kay, R. H. Meade Jr., T. R. Hudson and J. Johnson. -p. 99.
Extrapleural Pneumonolysis with Lucite Plombage. D. A. Wilson. -p. 111.
Epidural Anesthesia in Thoracic Surgery. Preliminary Report. Y. F. Fujikawa, A. Neves, C. A. Brasher and W. W. Buckingham. -p. 123.

Dorsal Sympathetic Ganglionectomy for Asthma.—Carr and Chandler treated 5 patients (2 men aged 59 and 29, respectively; 1 boy aged 13, and 2 women aged 25 and 32) who had bronchial asthma with intractable symptoms of long duration by dorsal sympathetic ganglionectomy. Bilateral excision of the third and fourth dorsal sympathetic ganglions was performed on 3 patients and bilateral excision of the second, third, fourth and fifth dorsal sympathetic ganglions was done in the remaining 2 cases. Microscopic examination of the removed ganglions gave evidence of toxic or metabolic degeneration. Observations of reduction of bronchial lumens between attacks of asthma suggest that changes in the condition of the bronchial mucosa and its glands are responsible for intermittent attacks of symptoms, rather than contraction and relaxation of smooth muscle. From the evidence presented by several workers it is difficult to believe that the vagus is a simple bronchial constrictor nerve; it seems more likely that the vagus and sympathetic trunks contain both sensory and motor fibers and that normal bronchial tone or normal function of the mucosa and glands depends on a balance between them. Sensitization to adrenin of structures which normally have a sympathetic nerve supply is suggested as a possible explanation for the effects of sympathetic denervation of the lungs in asthma. Postoperative follow-up of the 5 patients for periods from four to ten years reveals that they were enabled to return to useful occupations. They have gained from 10 to 100 pounds (4.5 to 45 Kg.). Only 2 patients have lost a few days from work because of "asthma" within the last year. All patients report a satisfactory response to small amounts of epinephrine when an impending attack is feared. The patients whose operations have been performed the longest (ten years) have progressively shown the greatest improvement.

Acute and Chronic Pulmonary Abscess.—Smith reports that 135 patients with primary pulmonary abscess were admitted to Duke hospital from 1940 to 1945, inclusive. Of the 36 patients with disease of less than four weeks' duration which was treated medically, 5 died, 19 recovered and 12 improved but were transferred to the surgical department for operation. Among the 24 patients treated medically between the fifth and twelfth weeks of their disease, 1 died, 6 recovered and 17 were to undergo surgical operation. After the third month of the disease medical treatment cured only 4 of 75 patients, while 5 died and in 66 the condition remained chronic. The optimum time for medical treatment is during the first four weeks of the disease, and this must be calculated from the onset of the febrile reaction and not from the time the first purulent sputum is produced. Drainage is an essential part of the treatment; medical drainage is accomplished by posture and is frequently improved by periodic bronchoscopic aspiration. Early medical diagnosis of the pneumonic infiltration which precedes the abscess is essential for successful treatment with penicillin, arsenic compounds or streptomycin. Thirty-five of the 135 cases of pulmonary abscess were classified as pyogenic and 100 as fusospirochetal. Sulfonamide treatment was definitely helpful in pulmonary abscess caused by gram-positive cocci; it gave only temporary improvement in the fusospirochetal types of infection but failed to cure; the abscesses became chronic and did not respond to sulfonamide or arsenical drugs or penicillin. For the early incipient stage of the infection penicillin is the drug of choice, and in the chronic cases the patients may improve after penicillin therapy to a point where they are better surgical risks. If the patient is not improving clinically and the abscess is not clearing steadily, as shown in serial roentgenograms, by the end of the fourth to sixth week of the disease, he should be referred to the surgeon for operation. Inadequate early treatment and prolongation of con-

servative treatment past the best time for surgical intervention are the chief causes for the high mortality from pulmonary abscess.

Journal of Urology, Baltimore
59:113-166 (Feb.) 1948. Partial Index

Teaching Urology to the Undergraduate. C. McMartin. -p. 113.
Treatment of Renal Insufficiency. G. W. Thorn. -p. 119.
Reflections upon Fertility in Men. R. S. Hotchkiss. -p. 149.
Benign Renal Tumors. J. J. Fuchsman and A. Angrist. -p. 167.
Extreme Renal Displacement Due to Retroperitoneal Tumors. L. F. Greene. -p. 174.
Complications Caused by Stump of Ureter After Nephrectomy. E. Ljunggren. -p. 179.
Transvaginal Ureterorectal Anastomosis with Partial Cystectomy: Case Report. H. D. Wolff Jr. -p. 182.
Comparison of Malignancy of Bladder Tumors as Shown by Cystoscopic Biopsy and Subsequent Examination of Entire Excised Organ. A. L. Dean. -p. 193.
Experiences with Oxycel Gauze in Genito-Urinary Surgery. A. E. Goldstein and A. Hollander. -p. 195.
Preliminary Report of Method of Primary Closure of Suprapubic Prostatectomy Using Oxidized Cellulose. G. D. Stump and R. C. Thumann Jr. -p. 202.
*Sump Drainage in Suprapubic Prostatectomy: Survey of 100 Consecutive, Unselected Cases. L. E. McCrea. -p. 207.
Modified Irrigating Solution for Transurethral Prostatic Resections: Preliminary Report. T. A. Dees, W. D. Steward, E. F. Meares and L. M. Orr. -p. 212.
Hormonal Factor in Heterologous Growths of Human Prostatic Cancer. C. L. Deming and M. S. Hovenanian. -p. 215.
Carcinoma of Prostate with Evaluation of Its Present Day Management. J. C. Birdsall. -p. 220.
Anastomosis of Vas Deferens After Purposeful Division for Sterility. V. J. O'Conor. -p. 229.
Reiter's Syndrome and Focal Infection. A. A. Creecy and F. S. Beazile Jr. -p. 234.
Pyocyaneous Infections of Urogenital Tract with Special Reference to Streptomycin Therapy. J. A. Lazarus, M. S. Marks and L. H. Schwarz. -p. 243.
Effect of Arsenotherapy on Upper Urinary Tract Changes in Infectious Abacterial Pyuria. A. A. Solomon. -p. 252.

Sump Drainage in Suprapubic Prostatectomy.—McCrea asserts that postoperative sump drainage is one of the recent refinements which has contributed both to the further lessening of hospitalization following suprapubic prostatectomy and to the comfort of the patient during convalescence. The principle of the sump for postoperative vesical drainage was originally advocated by Stedman, who introduced a motor suction pump. After mentioning other investigators who have used sump drains, the author says that in 1944 he described a drain which was made of stainless steel and was used for positive vesical drainage following prostatectomy. An improvement of the equipment was later described. This paper presents the latest improvements of such equipment and summarizes the end results in 100 consecutive, unselected cases in which sump drainage was used following suprapubic prostatectomy. There were 4 deaths, 3 of which were caused by cardiac disease. The fourth was due to pneumonia. The remaining 96 patients were discharged from the hospital and resumed their usual life. Vesical sump drainage materially shortened postoperative convalescence. In a recent survey it was found that the average postoperative hospital stay was 32.6 days when rubber tube drainage was used. When sump drainage was used, the postoperative hospital stay in uncomplicated cases was usually eleven to thirteen days. The comfort offered to patients by sump drainage is amazing. To be dry and comfortable during convalescence is ideal for the patient and for the nursing staff. There is a reduction in pneumonia and pyelonephritis. In a recent survey of 50 deaths following prostatectomy in which rubber tube drainage was used, mortalities resulting from pyelonephritis were 15.5 per cent. It was also found that pneumonia was responsible for a mortality of 10.3 per cent. In this series there was not a single instance of pyelonephritis and there was but one fatality from pneumonia. The wound heals rapidly by primary intention except for that small area utilized by the sump. The one disadvantage of sump drainage is that a mechanical contrivance must be understood by the nursing staff. Unless the principles of management of this equipment are understood, the use of sump drainage will be attended with dissatisfaction. The advantages of sump drainage far outweigh the disadvantage.

Nebraska State Medical Journal, Lincoln
33:37-76 (Feb.) 1948

Pulmonary Embolus. E. A. Connolly and A. W. Lempka. -p. 40.
*Primary Atypical Pneumonia. J. M. Neely. -p. 46.
Surgical Management of Acute Intestinal Obstruction. C. W. McLaughlin Jr. and J. H. Brush. -p. 51.
Perforated Peptic Ulcer. H. R. Elston. -p. 55.
Gonorrhea in Male--Modern Management for General Practitioner. E. Davis and L. W. Lee. -p. 60.
Considerations Concerning Gonorrhea in Female. D. C. Vroman. -p. 64.

Primary Atypical Pneumonia.—Neely says that although it is now generally agreed that the disease entity known as primary atypical pneumonia is caused by a filtrable virus, the term atypical pneumonia is retained because there are many instances in which the etiologic relationship cannot be definitely established. The disease is known by many other names such as virus pneumonitis, acute influenzal pneumonitis, acute pneumonitis, acute interstitial pneumonitis and bronchopneumonia of unknown etiology. Reviewing the present status of knowledge on this entity, Neely stresses that it is an interstitial pneumonitis which is caused by a filtrable virus. It is not a new disease. The pathology and clinical manifestations were described following the World War I and the Civil War. Physical abnormalities in the chest are usually minimal or absent; roentgen examination of the chest is necessary to establish the exact diagnosis. The mortality is low and complications few. Microscopically, the characteristic changes are thickening of the alveolar walls and ulceration of the terminal bronchioles with diffuse mononuclear cellular infiltration. Treatment is entirely symptomatic, and the sulfanilamide drugs and penicillin are of no value, except to prevent secondary invading pyogens.

Public Health Reports, Washington, D. C.
63:201-232 (Feb. 13) 1948

Negro Mortality: III. Course of Mortality from Specific Causes, 1920-1944. Mary Gover.—p. 201.
*Q Fever Studies in Southern California: I. Recovery of Rickettsia Burneti from Raw Milk. R.J. Huebner, W.L. Jellison, M.D. Beck and others.—p. 214.
Two New Salmonella Types: Salmonella Hidalgo and Salmonella Mission. J. Watt, Thelma M. DeCapito, P.R. Edwards and Alice B. Moran.—p. 223.

63:233-260 (Feb. 20) 1948

Epidemic of Acute Watery Diarrhea in Alabama. J.W. Smillie, Beatrice F. Howitt and G.A. Denison.—p 233.

63:261-296 (Feb. 27) 1948

Epidemic Tinea Capitis: A Public Health Problem. R.K.C. Lee.—p. 261.
Relative Productivity of Newer Coliform Media. Elsie Wattie.—p. 269.

Q Fever in Southern California.—Seventeen cases of Q fever were observed in Los Angeles County in the spring of 1947. The subsequent observations of 100 additional cases indicated that Q fever is

endemic in Southern California. Huebner and others report the recovery of Rickettsia burneti, the causative agent of Q fever, from the raw milk of four widely separated dairies in Los Angeles County. Three laboratories were able to recover the organism: the Q Fever Laboratory, Los Angeles County, Calif.; the National Institute of Health, Bethesda, Md., and the Rocky Mountain Laboratory, Hamilton, Mont. Seven isolations were made from duplicate specimens studied in two of the three laboratories. Specific antibodies for Q fever were demonstrated in the serums of guinea pigs previously inoculated with milk. The failure of such antibodies to appear in uninoculated controls and guinea pigs inoculated with materials other than milk provided evidence against the occurrence of spontaneous infection in the guinea pig colonies. Rickettsia-like organisms were cultivated in the yolk sac of fertile hen's eggs from the blood and spleen of guinea pigs inoculated with milk. The cultural, morphologic and tinctorial characteristics of eight such strains were identical with those of R. burneti. Yolk sac antigens prepared from milk strains reacted specifically in the complement fixation test with standard Q fever serums. Serums from California cows and human beings found to contain antibodies for Q fever were tested with antigens prepared from milk strains. Specific reactions occurred in the complement fixation test. While R. burneti was recovered from raw milk, the epidemiologic evidence did not indicate that the drinking of milk was the cause of the majority of cases. However, it is a possibility that infected milk may serve as a source of infection to man.

Rhode Island Medical Journal, Providence

31:1-84 (Jan.) 1948. Partial Index

Providence Medical Association 1848-1948. R. Hammond, J. E. Donley and P. P. Chase. -p. 15.
Providence City Health Department, 1856-1948. J. Smith. -p. 34.
Anesthesia in Rhode Island. A. H. Miller. -p. 37.
Fracture of the Upper End of Femur. E. B. Payne. -p. 48.
Psychologic Laboratory at Butler Hospital. G. R. Pascal. -p. 52.

31:85-152 (Feb.) 1948

Pneumococcic Lobar Pneumonia: Review of Cases in Rhode Island Hospital, 1945-1947. R. V. Lewis. -p. 99.
Cholesterol Tolerance. F. J. Burns. -p. 103.
Wilms Tumor: Report of 2 Cases in Same Family. M. A. Chapian. -p. 105.
Pattern was Established. G. W. Wells. -p. 107.
Group Medical Practice. F. T. Hill. -p. 114.

South Dakota Journal of Medicine, Sioux Falls

1:43-90 (Feb.) 1948

Primary Malignancy of Lung. A. Ochsner, M. E. DeBakey and J. L. Dixon. -p. 43.
Hypertension and Diabetes. A. C. Grorud. -p. 48.
Distribution of General Practitioners. W. Duncan. -p. 52.
Treatment of Sequelae of Phlegmasia Alba Dolens J. E. Summers. -p. 55.

Southern Medical Journal, Birmingham, Ala.

41:99-186 (Feb.) 1948. Partial Index

Congenital Bladder Neck Obstructions. M. F Campbell. -p. 99.
Mass Survey of Gastrointestinal Tract. P. C. Swenson. -p. 108.
Epivascular Choroidal Pigment Streaks, Their Pathology and Possible Prognostic Significance, Additional Cases. R. O. Scholz. -p. 112.
Nitrogen Mustards in Treatment of Hodgkin's Disease and Lymphosarcoma. M. Sherry. -p. 118.
Clinical Evaluation of Tetra-Ethyl-Ammonium. G. H. Yeager, J. H. Walker and W. T. Raby. -p. 129.
*Pyribenzamine as Adjunct in Control of Morphine Withdrawal Syndrome. P. Kells. -p. 134.
Important Role of Allergy in Pediatrics. W. A. McGee. -p. 139.
Status Asthmaticus. H. M. Bubert and Sarah Cook. -p. 146.
Basal Metabolic Rate in Diagnosis. Iva C. Youmans. -p. 150.
Some Aspects of Management of Elderly Patient. H. K. Rathbun. -p. 153.
Malignancy of Nasal Sinuses. W. R. McKenzie. -p. 156.
Infiltrating Carcinoma of Bladder: Curability by Segmental Resection. H. J. Jewett and J. F. Cason. -p. 158.
Present Day Trends in Surgical Treatment of Carcinoma of Large Intestine. M. Edwards. -p. 162.
Review of Surgery of Spleen. W. D. Wise and P. C. Phelan Jr. -p. 170.
*New Concept in Treatment of Peyronie's Disease. W. W. Scott and P. L. Scardino. -p. 173.
Surgical Aspect of Infestation with Intestinal Parasites. J. M. Miller and S. J. Thomison. -p. 178.

"Pyribenzamine" as Adjunct in Morphine Withdrawal Syndrome.—Kells suggests that the factor responsible for the symptoms of the morphine abstinence syndrome is an antimorphinic substance elaborated by the body during the period of addiction. Tripelennamine hydrochloride ("pyribenzamine hydrochloride" N.N.R.) is believed to neutralize this substance chemically and thereby alleviate the discomfort of the abstinence syndrome. In addicts taking 1 grain (0.06 Gm.) or less of morphine a day, administration of tripelennamine in doses of 50 mg. four times a day may be started at once. In those taking larger amounts the tripelennamine is not given until the daily intake of morphine has been reduced by half. The dosage of tripelennamine is continued for three days following the last dose of morphine. Tripelennamine is given during the next two weeks whenever necessary to alleviate the mild withdrawal symptoms. In cases of long addiction such symptoms may continue for two months. The authors report 3 cases in which treatment with tripelennamine was used. They stress that the drug is but one portion of the total therapeutic procedure and is in no sense a substitute for morphine.

Treatment of Peyronie's Disease.—Largely as the result of the reported clinical effectiveness of the tocopherols in the treatment of certain forms of fibrositis, such as Dupuytren's contracture, Scott and Scardino were prompted to try these substances in the treatment of Peyronie's disease. This disease is known also as plastic induration of the penis or chronic cavernositis. Since January 1947 the authors have treated 23 patients with Peyronie's disease at the Brady Urological Institute. These patients have been observed monthly for five to nine months. Treatment has consisted of the oral administration of a total daily dose of 300 mg. of mixed tocopherols in three divided doses or 200 mg. of synthetic alpha-tocopherol in two divided doses. Penile curvature was present in 20 of the 23 cases. Pain on erection occurred in 12 cases, loss of potentia in 16 and loss of libido in 4. Six patients had complaints referable to Dupuytren's contracture. Like Dupuytren's contracture, Peyronie's disease usually manifests itself first during the latter part of the fourth and early part of the fifth decade. Complete disappearance of curvature was noted in 4 cases, a considerable decrease in 4, a moderate decrease in 10 and no change in 2. Pain disappeared in all the 12 instances in which it had been present. Softening and a decrease in the size of the penile plaque was described as great in 6 cases, moderate in 15 and unchanged in 2. In the 6 patients with Dupuytren's contracture, improvement was observed in 4 cases and no change in 2. The authors recognize that in an occasional instance Peyronie's disease improves without treatment, but they believe that their results with tocopherol therapy cannot be explained on the basis of spontaneous improvement and that continued use of these substances is indicated.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine, Liverpool

41: 293-408 (Dec.) 1947. Partial Index

*Studies on Synthetic Antimalarial Drugs: XIX. Effect of Therapeutic Courses of Paludrine on Relapse Rate of Vivax Malaria. W. H. H. Andrews, D. Gall and B. G. Maegraith.-p. 375.

Synthetic Antimalarial Drugs.—The relapse rate of vivax malaria after treatment of patients with certain antimalarial drugs is discussed. Comparison is made between effects of a standard quinacrine therapeutic course and of two different dosage regimens of "paludrine" (chlorguanide hydrochloride) on the relapse rate of vivax malaria. Significant difference was not observed. Effects of single therapeutic doses of "paludrine" followed by one weekly dose for six months are described. Relapse rate of vivax malaria after this treatment was significantly less than with other therapeutic regimens.

British Journal of Dermatology and Syphilis, London

60: 1-40 (Jan.) 1948. Partial Index

Diffuse Mesodermal Pigmentation with Congenital Cranial Abnormality. Alice Carleton and Rosemary Biggs. -p. 10.
*Skin Sensitivity to Penicillin Preparations. R.H. Meara. -p. 14.

Skin Sensitivity to Penicillin Preparations.—The 3 cases of skin sensitivity to penicillin preparations reported by Meara illustrate the importance of analyzing reaction to the application of compounds. In 1 case the cutaneous condition was caused by the application of penicillin ointment; in 2 cases exacerbations of fairly longstanding exogenous conditions of the skin were caused by the application of penicillin cream. In all 3 cases penicillin as such was found not to be the noxa concerned. In case 1, skin sensitivity to penicillin existed only when the drug was incorporated in the cream base. In cases 2 and 3 penicillin was not concerned at all, the responsible agents being wool alcohols (sterols) and chlorocresol, respectively.

British Journal of Industrial Medicine, London

4: 205-266 (Oct.) 1947

Observations on Toxic Effects of Cordite. J. S. Weiner and M. L. Thomson. -p. 205.
Risk of Fluorosis in Magnesium Foundries. R. G. Bowler, M. Buckell, J. Garrad and others. -p. 215.
Experimental Production of X-Ray Shadows in Lungs by Inhalation of Industrial Dusts: I. Iron Oxide. H. E. Harding, J. L. A. Grout and T. A. L. Davies. -p. 223.
Argyrosiderosis of Lungs in Silver Finishers. H. J. Barrie and H. E. Harding. -p. 225.
Solubility or Distribution Coefficient of Trichlorethylene in Water, Whole Blood and Plasma. Joan F. Powell. -p. 233.
Barrier Creams and Their Evaluation. W. M. Cumming, M. C. Cameron, E. B. Cumming and M. C. Macraild. -p. 237.

British Medical Journal, London

1: 135-184 (Jan. 24) 1948

Training of Specialists: Place of Postgraduate Institutes. F. Fraser. -p. 135.
*Smallpox in Staffordshire, 1947; Outbreak at Bilston. C. S. Smith. -p. 139.
Absorption of Vitamin D in Steatorrhea. L. P. H. Fourman and G. H. Spray. -p. 142.
*Superior Mesenteric Arterial Occlusion: Recovery Without Resection. W. G. Hendry. -p. 144.
Chemotherapy of Infected Urines in Paraplegia. P. T. J. C. P. Warner. -p. 146.
Cardiac Murmurs in Infancy. Nancy Cox. -p. 148.

Smallpox in Staffordshire.—Smith describes an outbreak of smallpox which originated with a soldier who travelled from India by air. Several days after reaching home a modified attack of variola developed which was regarded as chicken pox. Of the 30 confirmed cases which developed subsequently, 15 were severe and there were 6 deaths—5 from hemorrhagic smallpox and 1, an unvaccinated confluent case. Vaccination was offered to all known contacts. No endeavor was made to advocate mass vaccination. The public, in panic at the continued incidence of cases, demanded vaccination. More than half the population of the town was vaccinated. Vaccination did not fully protect within the first week of the vaccination period. Many contacts were apparently vaccinated too late in the incubation period. Confluent cases occurred in persons in whom successful vaccination had been carried out nine and eight days before the appearance of the true smallpox rash; in 1 fatal hemorrhagic case successful revaccination of the patient had been carried out twelve days previously. Modified cases occurred where vaccination had been carried out twelve days before the rash appeared. Many persons vaccinated in the military services during the recent war years gave nonimmune reactions.

Superior Mesenteric Arterial Occlusion.—Hendry comments on etiologic and pathologic aspects of superior mesenteric arterial occlusion and presents the history of a man, aged 64, who submitted to surgical intervention because of repeated vomiting of fecal smelling material and tenderness of the abdomen. Laparotomy disclosed 2 to 3 pints (946 to 1,419 cc.) of blood-stained free fluid. In the upper part of the abdomen two loops of jejunum were engorged and contracted; the mesentery was grossly edematous up to the border of the intestine. The bowel showed hemorrhagic infarction and seemed still viable. The abdomen was closed without intervention. Continuous gastric suction was started and fluids were given by mouth. Intravenous dextrose-saline solution was given to attain rehydration. In addition intravenous heparin (50 mg.) was given every five hours for five days. Convalescence was uninterrupted. In retrospect, it was believed that diagnosis could have been made on the basis of the profound shock, partial intestinal obstruction with repeated and progressive vomiting but with good peristalsis and an adequate result from two enemas, and peritoneal irritation evidenced by rebound tenderness and the presence of free fluid. There is little doubt that the shock was due to the escape from the circulating blood of a large quantity of plasma by transudation from damaged intestinal and mesenteric capillaries. Shock and blood-stained intraperitoneal fluid are common observations in these cases.

Edinburgh Medical Journal

54: 593-668 (Nov.-Dec.) 1947

November 1847 and Its Sequal: Events Connected with Discovery of Anesthetic Properties of Chloroform by James Y. Simpson, George S. Keith and J. Mathews Duncan. J. Chassar Moir. -p. 593.
Corpus Luteum Hormone. G. F. Marrian. -p. 611.
Skeletal Traction and Anterior Decompression in Management of Pott's Paraplegia. N. M. Dott. -p. 620.
Anticoagulants. J. R. Learmonth. -p. 628.
Anticoagulants. C. C. Burt. -p. 632.
*Thrombophebitis in Pregnancy. G. D. Matthew. -p. 641.
Blood Changes in the Aged. O. Olbrich. -p. 649

Thrombophlebitis in Pregnancy.—Matthew says that the location of veins involved by thrombophlebitis is essentially the same in obstetric and nonobstetric patients with the exception of the deep pelvic veins. In the recently delivered woman the pelvic veins are apt to be the site of involvement. At the end of labor the large venous sinuses of the uterus, and particularly of the placental site, are obliterated by blood clot and if infection occurs, especially by anaerobic streptococci, a process of septic thrombophlebitis is initiated which may spread through the wall of the uterus to involve the ovarian and uterine veins. In this way there is established a deep pelvic thrombophlebitis, a condition which is not always clinically obvious and thus may account for some cases of apparently unaccountable pulmonary embolism. By further extension the thrombotic process may come to involve the internal iliac and common iliac veins and even the inferior vena cava. Moreover, either by an advancing periphlebitis or possibly by spread along the venous wall, the external iliac and femoral veins may be the site of continuous or isolated areas of thrombophlebitis. Pulmonary embolism, fatal or nonfatal, may occur either before or after thrombophlebitis manifests itself clinically. In the 17 fatal cases which occurred in the Simpson Maternity Pavillion during the past twenty years only 7 showed clinical evidence of thrombosis affecting the veins of the pelvis or lower limbs. Treatment with heparin is discussed, but the author finds it difficult to draw definite conclusions. Objectives of heparin therapy are the immediate control of the local thrombosis, prevention of local spread, prevention of recurrence in the original site or elsewhere, and prevention of pulmonary embolism. These objectives were satisfied in all but 2 cases. In both of these embolism occurred, in one after premature interruption of treatment and in the other after an insufficient drug supply made a full course of treatment impossible. Treatment with heparin reduced the period of hospitalization on the average by one week.

Glasgow Medical Journal

29:1-48 (Jan.) 1948

*Progressive Postoperative Gangrene of Skin: Observations on Etiology and Treatment in 2 Cases. A. Lyall and R.D. Stuart. -p. 1.
Course of Bronchiectasis in Children. F.J. Ford. -p. 19.
Clinical Memoranda: Asthma in Child Precipitated by Carbohydrate Dyspepsia. A. Brown. -p. 33.

Postoperative Gangrene.—According to Lyall and Stuart, progressive postoperative gangrene of the skin is the name given by Brewer and Meleney to a slowly spreading gangrenous condition of the skin and subcutaneous tissue arising from an operative wound. The lesion is also commonly termed synergistic gangrene. The authors describe 2 cases of progressive postoperative gangrene. Penicillin was not available when these patients were seen. In both, the lesions failed to respond to sulfonamide drugs or any form of local antiseptic treatment. One patient died, the other recovered after the spreading gangrenous process had been interrupted by repeated surgical guttering. A microaerophilic streptococcus was recovered from the lesions in both patients: in one it was associated with Proteus vulgaris, in the other with Staphylococcus albus initially and later with Staphylococcus aureus. Experiments on guinea pigs and rabbits suggested that each of the three organisms in combination with the associated streptococcus played a synergistic role in the condition. The fact that P. vulgaris has been found to play an intrinsically important part in 1 case of this peculiar form of gangrene suggests that penicillin therapy may be unsuccessful in other similar cases and that adequate surgical intervention along the lines described may then be essential for cure.

Transactions Royal Soc. Trop. Med. and Hyg., London

41:269-426 (Dec.) 1947. Partial Index

Rickettsial Disease in East Africa Transmitted by Ticks (Rhipicephalus Simus and Hemaphysalis Leachi). G. M.A. Dick and E. A. Lewis. -p. 295.
Typhus in Northern Nigeria. T. H. L. Montgomery and F.H. Budden. -p. 327.
Observations on Action of Paludrine on Malarial Parasites. M. J. Mackerras and Q. N. Ercole. -p. 365.
Outbreaks of Sprue During Burma Campaign. F. Ayrey. -p. 377.
Growth of Protozoa in Tissue Culture. IV. Plasmodium Lophurae, Exoerythrocytic Forms, in Vivo and Vitro. I. M. Tonkin and F. Hawking. -p. 407.
Polymorphism in Trypanosoma Simiae and Morphology of Metacyclic Forms. A. T. Culwick and H. Fairbairn. -p. 415.
Infection of Man with Leptospira Bovis in Palestine. S. Bteah. -p. 419.

Archivos Argentinos de Pediatría, Buenos Aires

18:273-330 (Nov.) 1947. Partial Index

*Electroencephalographic Aspects of Infantile Epilepsy. F. Escardó and A. Mosovich. -p. 273.

Electroencephalographic Aspects of Infantile Epilepsy.—Convulsions in infants and children should be considered of epileptic origin unless the contrary is proved by negative electroencephalograms. Escardó and Mosovich obtained electroencephalograms of 8 infants and 42 children and adolescents with either epilepsy or convulsions. The electroencephalograms showed the precise degree of neurologic maturity and neuropsychic organization, the type and origin of convulsions and of convulsive syndromes in infants and children. Persistence of paroxysmal discharges in a definite cortical area in repeated electroencephalograms indicates focal epilepsy. When the discharges come from a given cortical region and follow a movement of cortical propagation they indicate jacksonian epilepsy, which is infrequent in children. The electroencephalographic aspects of nonfocal epilepsy are those showing discharges of rapid frequency in grand mal, of slow frequency in psychomotor epilepsy, of slow and rapid frequency in alternation in petit mal epilepsy and its varied forms, and a combination of tracings of the first and last types when grand mal and petit mal coexist. Electroencephalograms of the first three types call for (1) "epamin" (diphenylhydantoin sodium) and phenobarbital treatment, (2) "epamin" and (3) "tridione" (trimethadione), whereas those showing coexistence of grand mal and petit mal call for combined treatment with drugs indicated for each constituent type of epilepsy. Repeated electroencephalograms are also of value in the differential etiologic diagnosis of several convulsive syndromes in infants and children, especially febrile and nonfebrile convulsions, the so-called infantile eclampsia, the psychic and neurosympathetic forms of epilepsy, disorders of conduct, fainting and spasms. In the cases reported by the authors the electroencephalogram confirmed the clinical diagnosis in 32 cases, clarified the diagnosis in 24 cases and refuted it in 2 cases. The prognosis as to results to be expected from treatment and future behavior of patients in school is good when discharges occur as well organized, regular tracings but poor when they occur as dis organized, irregular tracings.

Chirurg, Heidelberg

17/18:625-672 (Nov.) 1947. Partial Index

Intra-Arterial Administration of Sulfonamide Compounds. G. Jorns. -p. 625.
Question Whether Tannin Treatment Has a Damaging Effect on Burns. P. Ollinger. -p. 629.
Blockade of Sympathetic Nerve in Acute Disturbances of Circulation of Blood. W. Block. -p. 635.

Intra-Arterial Administration of Sulfonamide Compounds.—According to Jorns, satisfactory chemotherapeutic result in bacterial infection of wounds is not always obtained by local administration of sulfonamide compounds. Advancing suppuration calls for oral or parenteral administration of these drugs. The advantages of both methods of administration are combined in the intra-arterial administration of the sulfonamide drugs provided that the method is limited to the vessels which supply the involved area. Intra-arterial administration carries the drug directly to the focus of the infection in high concentration. Untoward reactions can be prevented, since an effective level of the sulfonamide agent in the total blood can be obtained with smaller doses than those required for oral administration. Repeated intra-arterial injections at short intervals are indicated because of the brief duration of the high concentration. At first the author used sulfathiazole which had been slightly acidified according to the method of Brunner. Later he used another preparation without any addition. Injections of even 50 per cent solutions were tolerated without reaction. They proved surprisingly effective in severe suppuration of bones or soft tissue of the upper and lower extremities which could not be controlled previously in spite of adequate therapy.

Minerva Medica, Turin

39:85-102 (Jan. 21) 1948. Partial Index

*New Flocculation Test of Blood Serum in Pulmonary Tuberculosis. (Preliminary Note). G. Di Maria—p. 94.

New Flocculation Test in Pulmonary Tuberculosis.—The test reported by the author is simple, quick and extremely sensitive. It is positive in 95 per cent of cases of pulmonary tuberculosis. Four cubic centimeters of blood is withdrawn from a fasting patient into a syringe containing 0.2 cc. of a 2 per cent sodium citrate solution. The contents are mixed and centrifuged. Mercury sublimate, 0.7 cc. of a 1 per cent solution and 0.3 cc. of 95 per cent alcohol are thoroughly mixed in a graduate 1 cm. in diameter. Then 0.04 cc. of the patient's serum is measured with a pipet of 0.1 cc. capacity and added to the mixture in the graduate. The open end of the graduate is covered with the fleshy tip of the finger, turned upside down and the results observed, preferably in day light. Immediate flocculation, either abundant or moderate, indicates pulmonary tuberculosis, respectively acute or subacute; acute or subacute turbidity is followed by flocculation in all cases. If flocculation occurs within the first 5 minutes in the course of the test it indicates active pulmonary tuberculosis. Flocculation after the first 10 minutes of the test has no diagnostic significance. It occurs in the blood serum of normal persons and in that of persons with well healed lesions of pulmonary tuberculosis. Turbid and hemolyzed blood serums should not be used for the test.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

91:3741-3776 (Dec. 27) 1947. Partial Index

*Result of Bronchoscopic and Bronchographic Examination of 128 Patients with Positive Sputum. C. Dijkstra, C. Enseking and J. Struycken Jr. -p. 3742.
Paranephritic Infection Cured by Treatment with Penicillin. H. Deenstra. -p. 3749.

Bronchoscopic Examination of Tuberculous Patients with Positive Sputum.—Dijkstra and his co-workers performed bronchoscopic examinations on 128 tuberculous patients whose sputum was positive for Mycobacterium tuberculosis. They observed that half of them had specific changes such as tubercles, granulations, caseous deposits or polyp formations in the large bronchi. Another 25 per cent had only hyperemia and swelling. Incidence and type of changes were about the same whether tuberculous cavities were present or not. The use of an enlargement lens is important in the evaluation of the results of bronchoscopic examination.

Nordisk Medicin, Gothenburg

36:2539-2606 (Dec. 19) 1947. Partial Index

Wassermann Test in Congenital Syphilis Treated with Penicillin Together with Heavy Metals and with Arsphenamine or Spirocid. O. Enkvist. -p. 2540.
Hereditary Taint in Patients with Mongolism. H. Marthinsen. -p. 2541.
Roentgen Treatment of Tendovaginitis Crepitans of Forearm Without Immobilization and Without Interruption of Work. Nielsen. -p. 2543.
*Streptomycin in Miliary Tuberculosis and in Tuberculous Meningitis. A. Lichtenstein. -p. 2548.
Congenital Heart Defect with Cyanosis: Surgical Treatment. P. Sandblom. -p. 2560.
*Occurrence of Retinal Eye Complications in Diabetes. J. Möllerström. -p. 2571.

Streptomycin in Miliary Tuberculosis and in Tuberculous Meningitis.—In 4 cases of tuberculous meningitis treated with streptomycin the patients are clinically free from symptoms one to five months after the onset of meningitis. In 3 cases treatment was begun within two days of onset, in 1, nine days after onset. In all cases a vestibular disturbance occurred. In 1 instance this receded. Lichtenstein states that a long observation period is necessary because of the danger of late recurrence. The effect of streptomycin seems to be only bacteriostatic. In his first case the tuberculous meningitis appeared five weeks after the cessation of streptomycin therapy of a typical miliary tuberculosis which seemed to have healed, in another case, during streptomycin treatment of pulmonary tuberculosis. Toxic by-effects of streptomycin are seen especially on the acoustic and vestibular nerves. The significance of dosage and duration of treatment in the origin of toxic injuries and the extent to which they are reversible are not yet known. A purer streptomycin or a new related but less toxic antibiotic must be sought.

Occurrence of Retinal Eye Complications in Diabetes.—Möllerström states that retinopathy in diabetes is characterized by retinal hemorrhages and more or less extensive white foci. In grave cases proliferating processes occur. Examination of 2,166 diabetic patients revealed retinopathy in 112. The cause of diabetic retinitis is not yet known. Insulin treatment is no protection. Invalidizing reduction of vision and occasionally blindness can result. To combat and prevent retinal changes is at present an urgent problem in the care of diabetic patients. Diabetes retinitis may be seen in patients aged between 15 and 20, but in most cases appears at a later age. It occurs more often in patients with increased blood pressure and in those without ketonuria. Its increased frequency is thought to depend on the longer life of diabetic patients today, which allows time for the retinitis to develop.

Praxis, Bern

37:21-38 (Jan. 15) 1948

*Treatment of Puerperal Mastitis with Penicillin. W. Neuweiler. -p. 21.
Chemistry in Study of Life. P. Favarger. -p. 23.
*Toxic Effects of Streptomycin on Inner Ear. A. Montandon and B. Camenisch. -p. 28.

Penicillin in Puerperal Mastitis.—Neuweiler treated women who had puerperal mastitis, with or without formation of an abscess, by intramammary injections with penicillin. Fifty thousand to 80,000 Oxford units of crystalline sodium penicillin in 10 to 20 cc. of isotonic solution of sodium chloride were injected around the focus of inflammation; a few cubic centimeters of the solution were injected directly into the infiltrated area. In cases with formation of abscess, the abscess was emptied by puncture and the cavity of the abscess filled with the penicillin solution. Treatment should be repeated daily for five to seven days. Treatment is almost painless and recovery occurs in a few days with complete restitution and without mutilating scar formation and lacteal fistula. In contrast to the results obtained by local penicillin therapy, intramuscular administration of penicillin is not particularly effective. Penicillin passes into the milk with great difficulty, as was demonstrated by Kästli's test first used for the determination of bacterial growth in streptococcic mastitis in cows. This is the reason for the highly satisfactory results from intramammary injections; they may prevent the occurrence of new growth of bacteria in the tissues due to the necessary disinfection of the lactiferous ducts, which cannot be obtained by the intramuscular route.

Toxic Effects of Streptomycin on Inner Ear.—Montandon and Camenisch report the results of the otologic examination of 10 patients, 6 male and 4 female, between the ages of 11 and 32 years who had been treated with streptomycin for miliary tuberculosis and tuberculous meningitis. The average daily dose of the drug was 3 Gm. given by the intramuscular route; it was reduced to 2 Gm. or even to 1.5 Gm. after eight to ten days of the treatment. Four of the patients were given additional intraspinal injections of 0.10 to 0.25 Gm. streptomycin. The excitability of the labyrinth was diminished in 9 of the patients, and in several of them there was total inexcitability to caloric and rotary stimuli, suggesting grave damage to the vestibular passages in the absence of nystagmus or other manifestations of disturbance of the posterior labyrinths. There was a definite relation between the dose of the drug and the intensity of its vestibular effects; only mild disturbance or none resulted from the administration of doses of 2 Gm.; in several instances bilateral total areflexia to caloric and rotary stimuli corresponded with medium doses of 3 Gm., and complete paralysis of the two posterior labyrinths occurred in 1 case. In another case normal vestibular reactions were demonstrated by caloric and rotary tests before the initiation of the treatment, while postrotary hyporeflexia with crossed dysreflexia of Barré type was observed four months later when treatment was terminated. These observations on a small scale confirm those on a larger one by Fowler at the Presbyterian Hospital in New York. Streptomycin seems to exert a damaging effect on the cochleovestibular apparatus and primarily on the vestibular nerve. The average daily dose of 3 Gm. of the drug by intramuscular route seems to be near the limit of toxicity with regard to the central nervous system, and the intraspinal doses of 0.25 Gm. may be even more harmful. Complete and careful examination of the audition and of the function of the labyrinth should be performed before and after each dose of 3 Gm. with streptomycin.

Presse Médicale, Paris

56:73-84 (Jan 31) 1948

*Not Manifest Dystrophias; Alimentary Deficiencies and Disturbances of Hematopoiesis. (Clinical and Experimental Facts). G. Mouriquand, Mrs. V. Edel, K. Chaelo and J. Zathurecky. -p. 73.
Effect of BAL (British Anti-Lewisite) on Accidents Associated with Arsenic and Gold Treatment. C. Huriez, R. Merville, A. Taquet and B. Steenhouwer. -p. 74.
Medical Treatment of Abscess of Lung. R. Benda. -p. 75.

Disturbances of Hematopoiesis from Alimentary Deficiencies.—According to Mouriquand and his coworkers, often but not always hematologic disturbances may become manifest because of alimentary deficiencies. On the contrary, medullary disturbances or lesions may result nearly always from prolonged alimentary deficiencies (not only from ascorbic acid avitaminosis but from complex alimentary deficiencies). These disturbances of bone marrow may not become manifest, except for the intervention of "revealing factors." Only a transitory deviation from the normal number of red blood corpuscles resulted in normal guinea pigs from repeated blood-letting by cardiac puncture (two to four punctures at intervals of eight to ten days). Anisocytosis, anisochromia and an occurrence of erythroblasts in the blood in addition to fairly pronounced anemia resulted from repeated blood-letting in guinea pigs which were placed on a diet deficient in ascorbic acid. The same disturbances resulted from repeated blood-letting in rats which were placed exclusively on a buttermilk diet. Rats on a varied and balanced diet tolerated the repeated blood-letting well. Clinical experiences were confirmed by these experiments. Patients with alimentary deficiencies should be placed on a balanced diet rich in proteins, and treatment should consist in the administration of iron, folic acid and ascorbic acid in order to prevent severe disturbances of the blood. It should be remembered that prolonged treatment is required for restoration of the bone marrow to normal.

Strasbourg Medical

107:385-398 (Nov. 15) 1947

*Repercussions of Gastric Resection for Ulcers on Formed Elements of Blood. G. Faller and J. Kuhlmann. -p. 385.
Evaluation of Terrain in Pulmonary Tuberculosis. P. Weiller. -p. 387.

Effect of Resection for Gastric Ulcer on Blood.—Faller and Kuhlmann say that although it has been charged that gastric resection may result in pernicious anemia, they themselves have never observed this form of anemia after resection for gastric ulcer. In order to obtain information about the late effects of gastric resection on the blood, they made follow-up studies on patients who were operated on between 1935 and 1940. The resections usually involved from three fifths to three fourths of the stomach. Follow-up examinations were made on 53 patients. In about half of this number a mild anemia was observed. In comparison of the tendency toward anemic states in those who had ulcer of the lesser curvature with those who had pyloroduodenal ulcer, it was found that the tendency was three times greater in the former than in the latter. The anemia observed, however, was never of the pernicious type. The anemias could be effectively counteracted by the administration of iron preparations.

Book Notices

A Manual of Pharmacology and Its Applications to Therapeutics and Toxicology. By Torald Sollmann, M.D. Seventh edition. Cloth. Price, $11.50. Pp. 1132. W. B. Saunders Co., W. Washington Square, Philadelphia 5, 1948.

This book has become well known to student, teacher and practitioner. First copyrighted in 1917, it is a standard teaching and reference book. Unlike some other reference books, it is easily read and has always been filled from one end to the other with meaty information that can be put to practical use. The new edition is completely revised, and the format is changed to make it even more readable. For those who are interested in therapeutics, up-to-date and practical information abounds; for those who are interested in animal experimentation, the book is indispensable. That which is no longer of real importance has been omitted, and that which is new has been included and described so that its full value and limitations are readily apparent. The book can be recommended for every one, including medical students, medical practitioners, pharmacists and nurses, who is interested in any phase of therapeutics. Of course it contains detailed information that is not necessary for pharmacists and nurses, but nevertheless they will find this an excellent reference source. As for physicians, the usefulness of this book can best be expressed by stating that it should be in the library of every medical student and on the desk of every physician.

Human Ancestry from a Genetical Point of View. By R. Ruggles Gates, F.R.S. Cloth. Price, $7.50. Pp. 422, with 36 illustrations. Harvard University Press, Cambridge, Mass., 1948.

The author, who is widely known as a biologist and anthropologist, reviews here the origin and history of the races of mankind throughout the world. He conceives that there have been many divergents from various ancestral stocks. Much of the study has been made at first hand by the author, particularly among the Polynesians and Melanesians. The scholarly character of the study, the excellent bibliography and a comprehensive index make this among the best available books in its field.

The British Encyclopaedia of Medical Practice Including Medicine, Surgery, Obstetrics, Gynaecology and Other Special Subjects. Medical Progress, 1947: Cumulative Supplement, 1947. Editor in Chief: Rt. Hon. Lord Horder, G.C.V.O., M.D., B.Sc., Physician to the King. Fabrikoid. Boards. Pp. 527, with 15 illustrations; 274 with 6 illustrations. Butterworth & Co. (Canada) Ltd., 1367 Danforth Ave., Toronto 6, 1947.

The British Encyclopaedia of Medical Practice keeps its subscribers up to date by the publication of annual volumes and comulative supplements. These are essentially abstracts of important new contributions with occasional reviews of several articles. The books listed here supplement the original twelve volumes.

Stone Walls and Men. By Robert M. Lindner. Cloth. Price, $4. Pp. 496. New York, Odyssey Press, 1946.

The approach to crime from the medical point of view has fascinated many a physician and general reader. The author of this book has taught his subject for some years at Bucknell University, Lewisburg, Pa. He supplements his text with case reports that are as fascinating as modern novels. His chapters concern such aspects of the subjects as the motivation of crime, psychopathy and crime, juvenile delinquency and life in prison. Dr. Lindner is convinced that there is need for far more study of the individual criminal by the methods of modern psychology and psychiatry than has thus far been applied. His approach to crime from the psychologic and sociologic points of view and what he has learned from this approach offer opportunity for application by the responsible authorities.

Prophet in the Wilderness: The Story of Albert Schweitzer. By Hermann Hagedorn. Cloth. Price, $3. Pp. 221. With portrait. The Macmillan Co., 60 Fifth Ave., New York 11, 1947.

Albert Schweitzer: *An Anthology.* Edited by Charles R. Joy. Cloth. Price, $3.75. Pp. 323. Harper & Brothers, 49 E. Thirty-Third St., New York 16; the Beacon Press, Inc., 25 Beacon St., Boston 8, 1947.

Suddenly the story of Albert Schweitzer has achieved worldwide interest. Recent publications include this brief biography and this collection of quotations from his various writings, as well as other works of comment. Schweitzer is unquestionably one of the great minds of our times. His contributions to philosophy, to music and the arts, and his work in a great medical center which he established among the natives of French Equatorial Africa are contributions that demand respect and admiration.

The Neocortex of Macaca *mulatta*. By Gerhardt von Bonin and Percival Bailey. Illinois Monographs in the Medical Sciences. Vol. V, no. 4. Published by the University of Illinois, under the auspices of the Graduate School. Paper. Price, $3. Pp. 163, with 102 illustrations. The University of Illinois Press, Urbana, Ill. 1947.

This is, to date, the only thorough study of the cortex of the most commonly used primate. It has a prologue, seven autonomous chapters and an epilogue. It is written in good prose, with a happy choice of words, preserving familiar terms without loss of precision. Its ninety pages of text include about fourteen pages of tables and clear line drawings schematizing the growth, size and proportion of the brain, its fissural pattern, thickness of layers, survey by serial sections, partial maps by sundry authors and diagrams of interconnections. The frontispiece, in color, conveys the distribution of distinguishable architectural areas and by its tinting suggests how these merge into one another. There is a carefully selected bibliography of some one hundred and fifty entries. But the most important portion of the volume is, as the authors state, a set of sixty-two collotype plates, each at a magnification of 100 diameters, of a section 20 microns thick, cut practically perpendicular to the surface of the cortex at a place indicated exactly in the figures. Even to the untrained eye these Nissl stains show the resemblance of each cortical area of the monkey's brain to the same area of man's brain as depicted by von Economo, whose terminology the authors have therefore employed. The book will be most useful to those engaged in experimental work on the cortex, who wish to draw conclusions concerning man from observations on Macaca mulatta. As it is likely to remain the standard text for many years, we are particularly indebted to the authors for an anatomy that is fun to read, and to the University of Illinois Press for a volume that is a pleasure to see.

History of the Medical Society of the District of Columbia. Part II, 1833-1944. History Committee: John Benjamin Nichols, Chairman, William Johnston Mallory and Joseph Stiles Wall. Cloth. Price, $5. Pp. 357, with 14 illustrations. The Medical Society of the District of Columbia. 1718 M St., N.W. Washington 6, D. C., 1947.

A volume of five hundred and one pages published in 1909 traced the history of this distinguished medical society from 1817 to 1909. The present volume offers a continuation until recent times and supplements some of the earlier materials. In 1911 the Medical Society of the District of Columbia and the Medical Association of the District of Columbia amalgamated. There are chapters about the contribution to World War I, economic problems and records of the officers of the society and its publications, as well as a complete record of membership.

The Impact of a Children's Story on Mothers and Children. By Martha Wolfenstein. Monographs of the Society for Research in Child Development, Serial No. 42, Volume XI, 1946, No. 1. Paper. Pp. 54. Society for Research in Child Development, National Research Council, 2101 Constitution Ave., Washington 25, D. C., 1947.

Among the newer psychologic technics is work of the type exemplified by this study. The story concerned the birth of a second child in the family. It was tested on 10 children aged 4 years—5 boys and 5 girls—with their mothers. The reactions of the child and the mother were then reported and studied. The study indicated that resistances against the story developed in the mothers and transmitted themselves to the children, which made possible rewriting of the story to meet the needs. Conflicts were apparently created in the children, and other important psychologic observations were also made.

The Contemporary American Family. By Ernest R. Groves and Gladys Hoagland Groves. [New edition of The American Family.] Cloth. Price, $4 50. Pp. 333. J.B. Lippincott Co., 227-231 S. Sixth St., Philadelphia 5, 1947.

This book is a completely rewritten and reset edition of the book published by the authors in 1934 under the title "The American Family." It has become one of the most important reference works in the field that it concerns and is at the same time a most useful textbook in courses in sociology. The authors adopt the point of view that frigidity in the female is due in most instances to poor sex technic of the husband. There is rather too much of simplicity in this and in other medical aspects of the book. The volume is supplemented with a comprehensive bibliography and index.

The Parathyroid Glands and Skeleton in Renal Disease. By J. R. Gilmour, M.R.C.P., Pathologist in Emergency Medical Service; Junior Assistant Director, Bernhard Baron Institute of Pathology, London Hospital, London. Oxford Medical Publications. Cloth. Price, $5 75. Pp. 157, with 25 illustrations. Oxford University Press, 114 Fifth Ave., New York 11; Amen House, Warwick Square, London, E.C. 4, England, 1947.

The monograph based on the study and analysis of 60 unselected cases and 30 selected cases of renal disease deals with the description of and correlation between the histologic and other changes of the kidneys, parathyroid glands and bones. The renal diseases are divided for this purpose into three main classes: primary toxic nephritis, symptomatic toxic nephritis and other renal diseases. Each of the first two classes has several subdivisions. Cases of ischemic nephritis of vascular origin (benign hypertension) are excluded because abnormal enlargements or histologic changes in the parathyroids were not found with these conditions. Macroscopic and microscopic criteria are used to divide the parathyroid glands examined into six types. After recording the methods of standardization and the various standards used, Gilmour discusses the relation of parathyroid weights, their texture and color, and their histologic and cytologic features to urea retention, plasma phosphorus, blood pressure, heart weight, duration and type of renal disease and degree of renal destruction. The coexistence and significance of renal disease secondary to von Recklinghausen's disease as well as a brief review of the literature on parathyroid changes in renal disease are given. Then follow a detailed description and an analysis of the histologic bony changes (osteitis fibrosa) and renal rickets. After a brief discussion of metastatic calcification and calcinosis in relation to renal, parathyroidal and osseous reactions. There follows a chapter on calcium and phosphorus metabolism in their relation to renal rickets. metastatic calcification and calcinosis. In concluding paragraphs the problem of the cause of parathyroid and skeletal changes in renal disease of both adults and children is considered the proximate or immediate cause of the parathyroid hyperplasia, hyperphosphatemia by reduction of blood calcium being the remote cause. An appendix brings a summary of the 90 cases analyzed. The monograph represents a great amount of detailed and painstaking work, which will be appreciated mainly by the pathologist, but which should be useful study material for the clinician. Tabulation of the various standards employed would have helped the reader in understanding more readily the text. The bibliography is representative but not exhaustive

Illustrative Electrocardiography. By Julius Burstein, A.B., M.D., Visiting Electrocardiographer and Chief of the Cardiac Clinic, Morrisania City Hospital, New York, and Nathan Bloom, M.D., F.A.C.P., Associate Professor of Medicine and Chief of the Department of Electrocardiography, Medical College of Virginia, Richmond, Va. Third edition. Fabrikoid. Price, $6. Pp. 309, with 99 plates. D. Appleton-Century Co., 35 W. Thirty-Second St., New York 1, 1948.

The third edition with a new co-author is a complete revision of the text and illustrations, only two of the illustrations of the preceding edition having been retained. The clumsy size of the preceding edition has been replaced by a more conventional size. The book consists mainly of illustrations with explanatory text and some supplementary textual material. Essentially it contains chapters on the fundamentals of electrocardiography, the arrhythmias and electrocardiographic contour. Chapters on phonocardiography and cardiac roentgenology are included. The authors' statement in the preface that this edition takes the specialist through the entire field of electrocardiography is not adequately fulfilled. The book is suited only for the medical student and the beginner in electrocardiography, and even for them it is only fair. The illustrations are for the most part typical. The chapters on phonocardiography and roentgenology are superficial and contribute little even to a beginner. The discussion of the normal electrocardiogram is inadequate. The authors use only one chest lead in their illustrations, either IV_F or IV_R. The present recommendation of the American Heart Association Committee is for three chest leads, and the apex lead is not recommended. The section on multiple precordial leads covers less than a page and is totally inadequate. The comments on the unipolar leads are also superficial.

The best that can be said for this book is that the beginner may enjoy looking at some of the typical illustrations. Certainly no one past that stage would find this book useful or worth while. Even for the beginner, other texts are available which he will find far more useful

Treatment of Some Chronic and "Incurable" Diseases. By A. T. Todd, O. B. E., M.B., M.R.C.P. Second edition. Cloth. Price, $7. Pp. 324. Williams & Wilkins Co., Mount Royal and Guilford Aves., Baltimore 2, 1947.

The basic premises of Dr. Todd, as stated in the introduction, are sound and stimulating, but his application of these concepts in later chapters is confused and at variance with modern medical knowledge. One is pleased with the author's introductory emphasis that no disease exists as an isolated entity in a single organ or structure; that when one system is affected all others are involved to a greater or lesser extent. The unity of the patient as a basis for therapy, rather than treatment of a disease, is sound clinical thinking. Likewise welcome are the author's insistence on recognition of multiple etiologic factors and his protest against oversimplification of etiologic analysis by continuation of the inadequate idea of specific and single causation.

So far so good. But the elaboration of these ideas as applied to the therapy of the various chronic disorders, such as diabetes mellitus, epilepsy, postencephalitic parkinsonism, arterial hypertension, constipation and cancer is vague, faddish and at times irrational. In avoiding excessive specificity Dr. Todd tends to revert to the old and now largely discarded philosophy of gunshot prescribing. For example, the suggested management of chronic hyperthyroidism includes cortical hormone, high carbohydrate diet, radiation of the thyroid and fluoride salts to "depress hepatic glycogenolysis." No mention whatever is made of thiouracil or its derivatives. Arterial hypertension is stated to be due largely to alimentary dysfunction and defective venous return. It is to be cured with deep breathing exercises, a low fat diet and bitter carminatives! Would that it were so simple. Furthermore, a number of previously secret lead, selenium and sulfur colloidal suspensions are recommended for intravenous administration in the treatment of cancer and the arthritides. The book is a curious mixture of sense and nonsense; sound thinking is overlaid with illogical faddism and downright wishful thinking. It makes entertaining and sometimes amusing reading for the critical reader but, like Dr. Todd's other recent book, "Medical Aspects of Growing Old" (*J.A.M.A.* 135: 433 [Nov. 15] 1947), it is so unsound that it cannot be recommended.

Radio Manual: A Guide to Broadcasting for Mouth Health Education. "Prevention Through Education." Cloth. Price, $4. Pp. 320. Oral Hygiene Committee of Greater New York, 111 E. 56th St., New York 22, 1947.

This book is a collection of radio scripts used in the broadcasting program of the Oral Hygiene Committee of Greater New York, together with a history of the committee and a listing of its component organizations plus a section of the radio broadcasting of mouth health information. Within the narrow limitations of the subject, the broadcasts have achieved rather remarkable variety and interest in the scripts presented. Many of them, however, fail in the fundamental requirement of radio broadcasting, mainly, the necessity of broadcasting to the listener rather than merely at and for him. Information about the American Dental Association is undoubtedly important and of great interest to dentists, but it tends to leave the lay listener indifferent and disposed to tune out the program. In a number of the scripts the information is largely what the dentist would like the patient to know rather than what the patient would like the dentist to tell him.

Doctor Freud: An Analysis and a Warning. By Emil Ludwig. Cloth. Price, $3. Pp. 317. Hellman, Williams & Co., 5 Beekman St., New York 7, 1947.

In this biography Mr. Ludwig is entirely out of his field. What he has produced is not a competent biography but a parade of uninformed prejudices. Compared with other recent works that attempt to present an adequate consideration of Freud's contribution to modern psychiatry and psychology, this book is infantile.

The Endeavour of Jean Fernel with a List of the Editions of His Writings. By Sir Charles Sherrington, O.M. Cloth. Price, $3.50. Pp. 223, with 27 illustrations. Cambridge: at the University Press; New York: the Macmillan Company, 1946.

The name Jean Fernel has a high place in medical science. This book owes its quality not only to the greatness of the subject but also to the fact that the writer is no less an authority than Sir Charles Sherrington. The book is a fine biographic evaluation supplemented by side discourses on other great persons of the period and by adequate biographic references.

The Conduct of Life Assurance Examinations. By E. M. Brockbank, M.B.E., M.D., F.R.C.P. The General Practice Series. Second edition. Cloth Price, 12s. 6d. Pp. 176. H. K. Lewis & Co., Ltd., 136 Gower St., London, W. C. 1, 1947.

Although prepared by a British author primarily for British readers, this book should be of real interest and value to general practitioners in the United States. Physicians specializing in life insurance examinations or in industrial medicine will find many helpful suggestions, based on the wide experience of the author in this particular field. This edition covers the more recent advances in life insurance work with new material and tables on tuberculosis and cancer risks, glycosuria, blood pressure and expectation of life. The text is divided into two sections, the first of which deals with the routine examination and completion of the medical report form, while the second section suggests some of the guiding principles in the examination and possible acceptance of so-called "impaired lives," or substandard risks.

The author is an authority on the heart and cardiovascular system in general. Another book of his, "Diagnosis and Treatment of Heart Disease," already has appeared in a sixth edition. It is not surprising, therefore, that the chapters on the cardiovascular system in his book on life insurance medical examinations are among the most valuable and significant. The book has a well organized table of contents covering all twenty-six chapters of the two sections, a brief list of general references and an index of subjects. Although a few minor typographic errors are present in the text, the material on the whole is well prepared and printed.

The Gifted Child Grows Up: Twenty-Five Years' Follow-Up of a Superior Group. By Lewis M. Terman and Melita H. Oden, in association with Nancy Bayley, Helen Marshall, Quinn McNemar and Ellen B. Sullivan. Volume IV, Genetic Studies of Genius. Edited by Lewis M. Terman. Cloth. Price, $6. Pp. 448. Stanford University Press, Stanford, Calif.; Oxford University Press, Amen House, Warwick Square; London, E. C. 4, England, 1947.

This is the fourth volume in Professor Terman's magnificent study of the gifted child that has now moved into a second generation. He follows his children with high intelligence quotients into their occupations, their family life and their social and political attitudes. In the field of study comprehended by this work, there is no more important research.

Chronic Structural Low Backache Due to Low-Back Structural Derangement. By R.A. Roberts, B. Sc., M.B., Ch. B. Cloth. Price, 45s. Pp. 105, with 137 illustrations. H.K. Lewis & Co., Ltd., 136 Gower St., London, W.C. 1, 1947.

This book represents keen observations and intensive study on a subject that involves a small, though important, part of the body. The author discusses spondylolisthesis and its associated pathologic changes, i. e., neurovascular and visceral symptoms and defects of ossification. Since most of the present writings by gynecologists, urologists, abdominal surgeons, internists and psychiatrists pay little attention either to the pain of spinal origin which may simulate visceral pain or to the neurovascular symptoms which can arise through sympathetic nerve irritation by skeletal lesions, the author believes that there is a need for a radical reassessment of differential diagnoses. In the vast majority of these variations in structure, there is little or no consequent weakening of the skeletal architecture.

The pars interarticularis is situated between the superior and inferior articular processes. Laterally it joins the base of the transverse process. It is only on the neural canal aspect that it is continuous with the pedicle and lamina.

In the lumbar spine of the human being it is the narrowest and most delicate part of the neural arch, its cross sectional area being less than that of any other part. A nutrient artery enters either anteriorly or posteriorly. It can be termed the vital pivotal center in the architecture of the vertebra for the interaction of the powerful muscles and ligaments of this region.

Roberts's study began as an attempt to understand more clearly the roentgenologic interpretation of these defects and a search to explain the great discrepancy between the small number diagnosed in the living and the high incidence of over 1 in 20 found anatomically. The author quotes several writers on the research that has been made to explain the defects which are found in the ossification of the pars interarticularis of the vertebrae. Willis reported over 5 per cent of these defects in 1,520 skeletons; Shore 6 per cent in Bantus; Congdon 5 per cent in American aborigines; while Stewart found as many as 25 per cent in Eskimos.

The once popular diagnosis of "toxic sciatic neuritis" included all cases of ruptured intervertebral disk. There is no more justification for suspecting infection in overstrain in the lower part of the back than there is in internal derangement of the knee joint, tennis elbow or march fracture.

The diagnosis of an anxiety state as opposed to the mere presence of anxiety symptoms should be made only when anxiety symptoms are abnormally intense, and above all when they are abnormally persistent....It is wise to exercise caution before diagnosing an anxiety state unless one or all of the following signs are present: pallor, drawn face, dilatation of the pupils, flushing, sweating, tachycardia, fine tremor and consistently brisk reflexes, particularly in the arms.

Detection of the condition is neither difficult nor a sign of shrewdness. One trick in particular is fallacious, that of marking out tender spots and observing whether they change; they frequently change in patients with recognized and accepted lesions.

Two of the most generally mentioned motives are the desire to gain compensation in civilian life and the desire to escape military service. Our accusations against the unfortunate backache might have a boomerang effect, were the patient more aware of things and we not so sheltered by our privileged position. The main purpose of treatment, apart from relieving symptoms, should be to strengthen the vulnerable part of the spinal structure.

Diseases of the Joints and Rheumatism. By Kenneth Stone, D.M., M.R.C.P., Physician, B.R.C.S. Clinic for Rheumatism and Physical Treatment, Kensington. Cloth. Price, $6.50. Pp. 362, with 57 illustrations. Grune & Stratton, 381 Fourth Ave., New York 16, 1947.

The author presents a satisfactory exposition of his subject and adequate coverage of the material. The book is intended for students. The author aims to present a guide to those postgraduate students who intend to engage in the special study and practice of rheumatology. He makes a pertinent statement that efficient clinical investigation is impossible without a foundation of knowledge covering the whole field of articular disorders.

He presents his material in two parts: The first deals with disease of the joints and the second with nonarticular rheumatic diseases. He stresses the point that a painful knee is a different problem from a painful shoulder even though they both are caused by the same pathologic process.

The section on experimental fibrositis is interesting. Although it does not present anything new, it is a practical book and easy to read.

Personality in Handwriting: A Handbook of American Graphology. By Alfred O. Mendel. With a foreword by Rudolph Arnheim, Ph.D. Cloth. Price, $3.50. Pp. 375, with illustrations. Stephen Daye Press, 105 E. 24th St., New York 10, 1947.

As the author states in the foreword, "Graphology offers a dramatic example of the battle for scientific truth. Its students range from the soothsayer in the night club to the experimentalist who measures pen pressure in the laboratory .... At the present stage of graphological affairs an open minded and at the same time critical consideration of all available resources is necessary."

Mendel has produced a lucid, well written, convincing volume which takes graphology out of the realm of mysticism and presents it as a scientific approach to the understanding of human personality. The whole book is so well written and the author's style is so simple and convincing that the reader finds that this is not just a book to be read but one that may be studied with pleasure and profit. Nothing is left to the reader's imagination and the deductions and conclusions reached appear logical and are reinforced with much concrete evidence for their validity. This book is highly recommended reading for any one seriously interested in personality study.

Recent Advances in Sex and Reproductive Physiology. By J. M. Robson, M.D., D.Sc., F.R.S.E., Reader in Pharmacology, Guy's Hospital Medical School, University of London, London. With an introduction by Professor F. A. E. Crew, M.D., D.Sc., F.R.S. Third edition. Fabrikoid. Price, $5.75. Pp. 336, with 65 illustrations. The Blakiston Co., 1012 Walnut St., Philadelphia 5, 1947.

The third issue of this volume is the first to appear in seven years. During this time much has been contributed to the field of sex and reproductive physiology. The author has expertly handled this new material in its relationship with the previously developed knowledge to make a cohesive and homogeneous volume for the benefit of the specialist and student of these subjects. Only an author who has had intimate contact through his own personal researches could manage to prepare an authoritative, readable book without being led astray by the confusing mass of data available in the literature. The author is well qualified to fulfil these requirements.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

CAUSE OF SUDDEN DEATH

To the Editor:—The following are reports of a patient who dropped dead July 31, 1947 while at work in the mines. He had been employed as a miner for thirty-one years. The coroner's report showed that death was caused by coronary thrombosis (no postmortem examination was performed at this time). His family had an autopsy performed and a roentgenogram taken one day later, reports of which follow:

Body: The body was that of a middle aged man, moderately obese. There was no external evidence of injury or disease. The body had been embalmed. Head: not opened. Thorax-Heart: The heart was distinctly but moderately enlarged. All chambers were involved in this hypertrophy, and the relative variation was not great. The valves showed no significant pathology until the aortic was reached; there was an extreme degree of distortion, sclerosis and calcification. At that time the clinical lesion was stenosis, but the heart had been embalmed for twenty-four hours. The orifices of the coronary arteries were open, and there was no great damage to the ascending aorta. There was moderate sclerosis throughout both coronaries and the anterior branch of the left coronary contained calcified plaques, but no actual occlusion was seen, nor was there any evidence in the heart muscle. Lungs: Both lungs were tightly adherent to the chest wall and could be freed only with difficulty. The upper lobes were studded with small black fibrotic nodules. On both sides there were large areas of fibrosis and exogenous deposits. A major portion of the lung showed the same black pigmentation. The autopsy observations were in accord with the roentgen diagnosis, that is, a third degree pneumoconiosis (anthracosis). Abdomen: The gastrointestinal tract was negative. The liver and spleen showed no distinct pathologic process. There was no passive congestion of the kidneys, and all the organs showed some excessive fat deposits, but this was by no means extreme. Anatomic diagnosis: The anatomic diagnosis was third degree anthracosilicosis, aortic atenosis with cardiac hypertrophy and coronary insufficiency. Acute cardiac failure, the precise mechanism being uncertain, was the cause of death.

The roentgenologic report was as follows: Roentgenologic exposure of the chest made approximately one day after death revealed both pulmonary fields to be collapsed. There appeared to be a third degree pneumonoconiosis throughout the collapsed pulmonary field. The shadow of the heart was not well outlined. What are the probable secondary and primary causes of death? Is the heart condition secondary to the anthracosilicosis in the lungs, and do not the lymphatics cause a precipitation of cholesterol and calcium?

M.D., Pennsylvania.

ANSWER.--This reply is governed by the desire to avoid finite diagnostic conclusions. Major cardiovascular involvement is not a prominent feature of silicosis. The proceedings of the fourth Saranac Laboratory Symposium on Silicosis contains this item: "caution should be exercised in reporting causal relationships between the pulmonary fibrosis and disease of the heart since so many silicotics die in the age periods when disease of the heart and arteries are usual." In the immediate situation no precise proof is furnished that exposure to siliceous dusts occurred, but it is recognized that in the geographic area involved such exposure may have been provided. The record as furnished includes the diagnostic note, "third degree pneumonoconiosis (anthracosis)." It is not granted that any such entity exists, but the term, third degree frequently is associated with silicosis including anthrasilicosis. Roentgen films of completely collapsed lungs after embalming scarcely afford opportunity to distinguish between the several stages of silicosis. In those instances in which cardiac hypertrophy is believed to derive from pulmonary silicosis, expectations are for right-sided preponderance, which appears not to be the case in this instance. Death of this person took place "while at work." Silicosis of such severity as to make death from silicosis a major factor would have been accompanied by manifestations likely to have prevented work. Sudden death from silicosis is not expectable. It appears probable that some degree of silicosis did exist. Any uncertainty concerning this could have been cleared up by microscopic tissue examination. Even if the characteristic features of silicosis were established, such evidence in itself provides no assurance that this contributed to the cardiac state or caused the death of the miner. Anthracosis alone is of universal occurrence among miners and commonly represents benign pneumonoconiosis without significance. The record provides inclination to accept cardiovascular disease as the essential item in the cause of death. Any precise influence by the probably coexisting anthrasilicosis is unproved. Any association on a causal basis may reach into speculation.

SUBSTERNAL PAIN

To the Editor:--(1) If a smoker with angina on effort with only occasional and mild attacks, and with normal physical, fluoroscopic and electrocardiographic observations stops smoking and his "attacks" disappear entirely, what is his prognosis as far as life expectancy is concerned? Am I right in telling him that his spells were just angiospasms, without organic substratum, and that his prognosis is that of a healthy nonsmoker? What are the statistics relative to this problem? (2) In many cases of occasional mild substernal discomfort without any pathologic signs on the most careful physical, roentgenologic and electrocardiographic examination, I find that the substernal pressure appears only at times and that otherwise the patient may perform any amount of exercise, after a sleepless night and a heavy meal, and yet have no signs of myocardial anoxemia or any subjective complaints. Moreover, some of my patients tell me that in order to find out "how much the heart can take" they perform extremely heavy gymnastics without difficulty. However, one of these patients was told by a prominant consultant that he really has coronary insufficiency: "One discomfort in a year makes the diagnosis certain." He then insisted on another cardiologist, incidentally not less prominent; nevertheless, this time the opinion was as follows: "In case of organic substratum your patient would have always his attacks as soon as the same amount of exertion would be performed in the same conditions (heavy meal, etc.)." Who is right? (3) Are there any proved cases of persons who died from typical coronary attacks with negative anatomic pathologic observations? (4) Is seafood cholesterol-poor?

M.D., New York.

ANSWER.--1. It has long been recognized clinically that there appears to be little causal or temporal relationship between smoking and true angina of effort. Contrarily, there is a more apparent connection between tobacco and functional disorders of the heart associated with atypical chest pain which may radiate to the upper extremities, and, frequently, other constitutional symptoms attributable to the tobacco. Nevertheless, in patients with coronary artery disease the use of tobacco may precipitate or aggravate angina of effort, and abstinence from tobacco may bring about an amelioration of pain. The literature also provides a smaller number of illustrations of the permanent relief of angina of effort following withdrawal of tobacco in patients who were never demonstrated to have coronary artery disease. Many practicing cardiologists in their experience have been impressed by the relief of apparent angina of effort following the contradiction of tobacco. Despite considerable laboratory and clinical investigation attempting to elucidate the mechanism of pain production through tobacco, the subject remains controversial. One or both of these mechanisms,

singly or in combination, are thought to be operative (1) the heart is called to perform an increased amount of work because of the elevation of heart rate and blood pressure frequently caused by tobacco The need for coronary flow is therefore augmented, and relative coronary insufficiency ensues (2) Nicotine causes active coronary artery constriction by direct action on the vessels. Other factors thought to be contributory, or even solely responsible, are hyperreactivity of the blood pressure, hypersensitivity to tobacco, a direct toxic effect on the myocardium and the development of active ectopic cardiac arrhythmias.

In direct answer to the question, then, one cannot decide at the present time for or against a substratuum of organic disease. The absence of abnormal objective findings does not rule out coronary disease. The age of the patient may be prejudicial in one's thinking The provocative exercise test with the electrocardiogram, if distinctively abnormal, may provide the answer. Otherwise, one can only observe this patient for a much longer time before coming to a more definite conclusion. One must maintain a certain amount of mental reservation because of the unpredictable hazards related to coronary artery disease, if existent. What one tells the patient in such dubious diagnostic circumstances depends on one's policy in managing patients, and is to be decided by the attending physician.

2. Not every instance of substernal pain or oppression is the result of myocardial ischemia. Many other conditions must be ruled out. Both of these consultants have an element of correctness. Certainly, one attack of chest pain, if it carries with it enough of the known stigmas, can be ascribed to myocardial ischemia with or without myocardial infarction. In attempting to attribute one attack or recurrent attacks of chest pain to transitory myocardial ischemia, besides the nature and distribution of pain, the knowledge of the relationship of the onset of pain to circumstances demanding an increase of coronary flow is most important. Angina pectoris is characterized clinically by its variability. The same effort may on one occasion produce pain and on another occasion fail to produce pain. In general, it is true, angina patients come to recognize the limit of their exercise tolerance and can predict with remarkable accuracy the appearance of pain. Nevertheless, these same patients may recognize that on some days they are capable of greater than ordinary performance with impunity.

3. Yes. Sudden death may occur before the development of myocardial infarction.

4. Little data on the cholesterol content of fish is available. R. Okey (The Cholesterol Content of Food, *J. Am. Dietet. A.* 21:341-344, 1945) has presented the best available data on the cholesterol content of food, much of it obtained in her own laboratory on food specimens purchased in the open market. The cholesterol content of the skeletal muscle of codfish, salmon and shrimps is 0.05 per cent, 0.06 per cent and 0.15 per cent of the wet weight, respectively. This is practically the same as the cholesterol content of the skeletal muscle of beef, lamb, pork and chicken. Shellfish have a higher content of cholesterol, that of oyster being from 0.23 to 0.47 per cent, and of crabs 0.145 per cent of the wet weight of the edible portions These values may be too high, as they also contain digitonin-precipitable steroids other than cholesterol. In comparison with egg yolks, which contain 2 per cent cholesterol (0.3 Gm. per yolk), and beef brain, which contains 2.36 per cent cholesterol, fish provide a source of food relatively low in cholesterol.

SYPHILIS OF CENTRAL NERVOUS SYSTEM

To the Editor:—Please advise further treatment in the following case: A man aged 45 had a positive blood Wassermann reaction December 1946, without evidence of clinical syphilis or symptoms therefrom. The diagnosis was substantiated in a number of laboratories and he was given penicillin. He received eight daily doses, 300,000 units per dose, making a total of 2,400,000 units; the penicillin was discontinued because of a severe generalized eruption with involvement of the mucous membrane, as well as the entire skin. The patient was then treated with heavy metals and arsenicals. To date he has taken about thirty-five arsenicals and about a similar number of bismuth injections. His blood Wassermann reaction continues to be strongly positive and the spinal fluid Kolmar reaction is positive with the colloidal gold reading as follows: 55532000. Physical examination and neurologic examination are still negative and the patient feels fine and continues to do heavy work each day. We recently gave him 100,000 units of penicillin in saline solution, which quickly produced a return of all sensitivity reaction. As this patient shows some activity in the central nervous system I should like your opinion as to further treatment. Is it necessary to continue with the present treatment; give him hypertherm treatment; or attempt to desensitize him to penicillin? Is streptomycin effective in syphilis of the central nervous system?

ANSWER—Additional treatment in this case hinges on the degree of activity in the central nervous system, since treatment has otherwise been reasonably adequate and there are no symptoms or signs of syphilis. Prognosis in asymptomatic syphilis of the central nervous system depends on detailed study of the spinal fluid, including cell count and Wassermann, total protein and colloidal tests. Since the results of all these tests are not given the discussion must be general and cannot be specific.

Treatment for syphilis has been definitely inadequate in this case if the involvement of the central nervous system is active. With group I spinal fluids (increase in cells to about 10 or 12 lymphocytes, slight increase in protein, weakly positive to negative Wassermann reaction and slight disturbance in the colloidal curve) spontaneous regression may be expected. With group II fluids (increase in cells up to 50 lymphocytes definite increase in protein definitely positive Wassermann reaction, and greater changes in the colloidal curve) inadequately treated patients will show progression, usually to meningovascular neurosyphilis, in from 75 to 90 per cent of cases. With group III spinal fluids (cells over 50, considerable increase in total protein, strongly positive spinal fluid Wassermann reaction and strong first zone [paretic] colloical curve) inadequately treated patients will show progression usually to parenchymatous neurosyphilis (tabes or paresis) in 90 to 95 per cent of cases. An excellent discussion of this subject is given by J. E. Moore in THE JOURNAL (95:1637, 1930) and in his textbook "Modern Treatment of Syphilis" (Charles C Thomas, Publisher, Springfield, Ill., second edition).

If a review of the spinal fluid studies indicates a group II or group III fluid the unfavorable prognosis is such as to indicate additional more intensive treatment in spite of the absence of symptoms at present. Satisfactory treatment will prevent progression in as high as 70 per cent of cases.

For the average patient with syphilis of the central nervous system penicillin offers apparently as favorable results, and with much less risk, as do other methods of treatment (Stokes, J. H.; Steiger, H. P., and Gammon, G. D.: "Three Years of Penicillin Alone in Neurosyphilis," *Am. J. Syph. Gonor. & Ven. Dis.* 32:28 [Jan.] 1948). Reactions to penicillin which preclude the use of this drug for therapy of syphilis are distinctly unusual and may often be controlled for the week or two that it is necessary to give the antibiotic by the con-

current administration of one of the antihistamines (e.g., pyribenzamine). This is particularly true if the reaction is of the urticarial, or angioneurotic edema type (Pillsbury, D. M., Steiger, H. P., and Gibson, T. F.: J.A.M.A. 133: 1225 [Apr. 26] 1947).

When an allergic reaction is suspected from penicillin the purest obtainable salt should be used (e.g., crystalline G) so that other possible sensitizing agents may be excluded so far as possible, and the penicillin should be given in aqueous solution so that it may be speedily eliminated from the body if it is necessary to stop the treatment. In the present case, if antihistamine drugs have not been tried in conjunction with administration of penicillin a cautious retrial is indicated with 1,000 to 5,000 units of aqueous penicillin crystalline G every three hours, increased to full dosage after twenty-four to forty-eight hours if no untoward symptoms result. The pyribenzamine should be given in dosage of 50 to 100 mg. orally three times daily or, if required, every four hours day and night, and should be started twenty-four hours before the penicillin is commenced.

If the syphilis of the central nervous system is active and if the patient is still not tolerant of penicillin after the regimen outlined, then fever therapy should be used. Malaria would be the fever-producing agent of choice in such a patient who is in good general physical condition? The procedure should be carried out in a hospital and preferably in a medical center familiar with the use of this agent so that the hazards may be reduced to a minimum.

Although penicillin hyposensitization has been reported it is not generally employed and its use is not recommended in this case. Streptomycin has slight effect on Treponema pallidum and is not of demonstrated clinical value in the treatment of syphilis of the central nervous system.

PERSPIRATION'S p^H

To the Editor:—Please supply information regarding the chemical composition and hydrogen ion concentration of perspiration as it comes off the finger tips. I am interested in obtaining such information in an effort to develop synthetic films to avoid the corrosive effect of hand perspiration.

Ben K. Williamson, M. D., Moline, Ill.

ANSWER.—Lobitz and Osterberg have made determinations of the freshly secreted sweat from the palms and fingertips. They found that the p^H of sweat of normal persons was variable, ranging between 5.2 and 6.75. Sodium chloride varied between 650 to 1,450 mg. per hundred cubic centimeters of sweat. Urea concentration for those who sweat profusely averaged 93 mg. and for those sweating moderately, or what may be called intermittently, 275 mg. Sweat as it evaporates on the skin contains these materials in greater concentration. Thus the acidity of of the finger tips and the palm is found to be more intensely acid than the values already quoted would indicate. The p^H at these sites in normal persons varies between about 4 and 5. These surfaces are the most acid of the entire skin. Washing temporarily reduces this acidity and concentration of sweat constituents on the cutaneous surface.

DISINFECTION OF SWIMMING POOL

To the Editor:—We are building a public swimming pool in Fairfield in late spring. Is bromine as good as chlorine for disinfecting a swimming pool? We would appreciate an opinion. (Incidentally, I am against use of bromine, because if the object is to make the water in the pool as safe as drinking water, bromine won't do it.)

Donald B. Frankel, M.D. Fairfield, Ill.

ANSWER. The use of bromine as a substitute for chlorine in the disinfection of swimming pool water received impetus during wartime when chlorine became difficult to obtain. It would appear that a level of about 2.5 parts per million daily bromine dosage for indoor pools and 3 parts per million daily bromine dosage for outdoor pools provides a satisfactory treatment. Maintenance of a bromine residual between 0.2 and 0.5 parts per million is customary. This daily bromine dosage and bromine residual results in satisfactory disinfection with low incidence of complaints of eye and skin irritation. Equipment for the treatment of swimming pool water with bromine is still in the developmental stage. Further information on this subject may be obtained from Dr. Roland R. Cross, director, Department of Public Health, State of Illinois, Springfield, Ill.

PERTUSSIS IMMUNIZATION

To the Editor.—As a recently appointed rural health officer, I intended to encourage the adoption of the early immunization schedule for pertussis which is now generally favored. However, one of the physicians has told me of the death of 2 young infants within twenty-four hours after receiving a pertussis immunization. The circumstances in each case justified a diagnosis of suffocation, but the deaths were generally attributed to the injections. I would like to know whether any other occurrences of this type have been reported and whether any one has ever investigated the possibility of anaphylactic manifestations produced by the same mechanism as passive immunity during the first six months of life.

Elizabeth B. Faust, M.D., Donaldsonville, La.

ANSWER.—Severe reactions sometimes follow inoculations with pertussis vaccine. However, it is not known that any instance has been reported in which the cause of death attributed to anaphylactic shock from an injection of pertussis vaccine has been verified.

THORACOPLASTY AND CARDIOGRAPHY

To the Editor:—What are the "normal" variations of an electrocardiogram in a patient with a left-sided complete thoracoplasty? Please cite references on the subjection of the cardiogram in thoracic surgery.

ANSWER—The appearance of the electrocardiogram in a patient with a left complete thorocoplasty and whose heart is 'normal' will depend on the position of the heart within the chest and the rotation of the heart about its various axes (anteroposterior, longitudinal and transverse). However, insufficient information is available from an actual study of patients with complete thorocoplasties. Of importance is the elevation of the left hemidiaphragm accompanying the left phrenic excision which is usually done in conjunction with a complete thorocoplasty. This will tend to make the heart assume a more horizontal position and so be responsible for the presence of deep S waves in leads 2 and 3, or the presence of a Q and an inverted T wave in lead 3. Displacement of the heart to the right or the left with little rotation may have no effect on the limb leads, but but will affect the contour of the electrocardiogram in the precordial leads, particularly in those taken in positions 2, 3 and 4. Thus shift of the entire heart to the side of the thoracoplasty (left) may lead to the appearance of a QS wave with an inverted T wave in CF_2 and a small R, deep S, and a flattened upright T in CF_4 (shift of transitional zone to the left), CF_2 and CF_4 thus tending to resemble CF_1 in a patient without such a mediastinal shift. It is important to attempt to correlate the appearance of the electrocardiogram with the position of the heart as determined roentgenographically. The subject merits further investigation.

SEVERE RHEUMATOID SPONDYLITIS

To the Editor:—A severe spasm of the neck muscles occurs in a patient with advanced rheumatoid arthritis. The patient is an Italian woman aged 26 with rheumatoid arthritis involving the spine so that "there is complete bony fusion of the sacroiliac joints and of the apophysial articulations of the lumbar vertebra, but with normal x-ray findings regarding the cervical vertebrae." She has had the disease for five years, has a poker back, has lost 40 pounds (18.1 Kg.) (weighs 96 pounds [43.5 Kg. now) and has some activity at present, as evidenced by a continuous low grade fever and a sedimentation rate of 50 mm. per hour. There is involvement of knees and fingers in addition to the spine. Her chief disability at present, however, is that the muscles in her neck are in spasm so that she has been unable to move her head in any direction (flexion, extension, rotation or any other motion) more than ½ inch (1.27 cm.) for the past four months. That this is not due to bony ankylosis is demonstrated by the fact that the roentgenograms are normal and that under anesthesia with curare ("intocostrin" N.N.R.) she was completely relaxed and the neck was flail, permitting full motion in all directions. As soon as the curare and anesthetic effects were dissipated the spasm returned and has continued to date. She has been cared for by many arthritis specialists to no avail; I have given her (over a period of time) two courses of gold therapy (a total of 1 Gm. each in divided weekly doses), physical therapy (heat, massage and liniments) acetylsalicylic acid in 30 grain (1.94 Gm.) daily doses, a series of neostigmine injections, nonspecific protein therapy and several injections of curare in an attempt to break the torticollis. She has also had general care with vitamins, proteins and iron. A course of roentgen therapy gave some benefit with regard to pain but no relief from this resistant spasm. Any suggestions will be deeply appreciated.

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ANSWER.—Fortunately in many cases of rheumatoid spondylitis the disease affects the sacroiliac joints and apophysial joints and ligaments of the lumbar and thoracic region and "burns out" before affecting the neck. However, in some cases various structures of the neck also are affected: paravertebral joints ("facets"); paravertebral ligaments and muscles. Muscular involvement may be organic (small scattered regions of actual inflammation) or merely functional (muscular spasm secondary to adjacent inflammation in paravertebral joints). The latter possibility is presumably the basis for the symptoms of the patient in question. Mild degrees of inflammation in apophysial joints cannot be excluded entirely, since roentgenographic evidence of destructive articular changes is only apparent when significant destruction of cartilage or subchondral bone or both has occurred. Unfortunately, when rheumatoid spondylitis severely involves the cervical region, it is often refractory (at least temporarily) to nearly all therapeutic efforts. In most instances passage of time and control of the systemic disease result in subsidence of the symptoms.

Therapeutic efforts to relieve symptoms should be both local and general or systemic. Some suggestions are as follows: 1. Relieve pain temporarily by giving other analgesics or increasing the dose of acetylsalicylic acid. Patients often tolerate 60 to 80 grains (4 to 5.3 Gm.) daily of this or other salicylate analgesics and are thereby more comfortable. 2. For local mechanical support apply a plaster cervical collar extending downward from the chin anteriorly and the occiput posteriorly to cover the top of the shoulders. Irritation of inflamed regions may be notably decreased thereby. The support may be worn from three to twelve weeks or longer if desired. Subsequently a leather or other removable type of cervical collar may be used, and thus maintenance of as nearly normal range of motion as is possible in any particular case is permitted. 3. Further trial of roentgen therapy to the spinal column may be advisable since "some benefit" was noted from its use. Whether full advantage has been taken of this treatment for control of rheumatoid spondylitis, both locally and generally, should be determined by reviewing the amount and type of roentgen therapy given. In a recent paper R.H. Freyberg (*M. Clin. North America* 30: 603 [May] 1946) summarized the usual extent of such treatment. 4. Physical medicine should be employed in order to obtain as nearly normal range of motion and to prevent deformity as much as possible, even though the immediate results (symptomatically) of such treatment may not be as great as might be desired. 5. General measures should be used to improve the patient's resistance against ravages of the disease. More than the normal hours of rest in bed are needed to prevent muscular and nervous fatigue and a consequent increase in symptoms. This is especially important when progression of the disease is difficult to control. In some instances complete rest in bed for several weeks may be advisable. The patient with rheumatoid spondylitis should lie on the back and sleep without pillows on a firm, supported and nonsagging mattress.

STERILITY IN THE MALE

To the Editor:—In The Journal of Nov. 15, 1947, page 746, the answer to a query concerning sterility in a male makes no mention of the value of the follicle-stimulating hormone test (*J. Clin. Endocrinol.* 3:529, 1943). The patient under discussion had gynecomastia, small testes and azoospermia. In such a patient determination of the urinary excretion of follicle stimulating hormone is necessary to determine whether the lesion is of pituitary or testicular origin. If the excretion of follicle stimulating hormone is increased, the primary lesion is in the testis and further stimulation with a tropic hormone would be of no benefit. If such excretion is normal, the azoospermia is not of endocrine origin. If the excretion is decreased, the primary lesion is in the pituitary. Only in the last eventuality would treatment with a tropic hormone be indicated. Unfortunately, no such hormones are of proved value in stimulating spermatogenesis in man, and they may even be detrimental because of antihormone formation.

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VITAMIN C IN RHEUMATIC FEVER

To the Editor:—Please give references concerning use of ascorbic acid (1000 mg. intravenously two or three times weekly) in rheumatic fever. This has been advocated for a college student who had rheumatic fever "several years ago." At present signs of reactive infection are absent. What is the rationale of this treatment, its contraindications, and the dangers?

ANSWER—Ten or more years ago Rinehart and associates published papers (Rinehart, J.F.; Connor, C.L., and Mettier, S.R.: Further Observations on Pathologic Similarities Between Experimental Scurvy Combined with Infection and Rheumatic Fever, *J. Exper. Med.* 59:97 [Jan.] 1934) on vitamin C deficiency as a possible factor in rheumatic fever. In their experimental animals a combination of injection and vitamin C deficiency produced lesions similar in type and distribution to those of rheumatic fever. Other pathologists in reviewing this material were less impressed by the similarity.

In the light of this experimental work Faulkner (Faulkner, J. M.: The Effect of Administration of Vitamin C on the Reticulocytes in Certain Infectious Diseases, *New England J. M.* 213:19 [July 4] 1935) studied the effect of large doses of vitamin C (200 to 300 mg. per day) in 27 patients with rheumatic fever and observed no influence on the course of the disease.

The present belief is that adequate doses of vitamin C are as essential in the diet of patients with rheumatic fever as in any other acute or subacute disease, but that massive doses above the normal requirements have no specific effects.